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Abstract of a Paper on the Influence of Alcoholic Drinks, on the Development and Progress of Tubercular Diseases, and especially Pulmonary Tuberculosis; read to the Section of Practical Medicine and Obstetrics, during the Session of the American Medical Association for 1860. New Haven, Oct. June 5th, 1860. By N. S. DAVIS, M. D.

When we remember that about *one seventh* of all the deaths in our country, and also in some of the more enlightened nations of Europe, are produced by tubercular disease of the Lungs, we shall readily see the importance of investigating closely and critically the influence of every agent that may be supposed either to favor or retard its development.

For many generations, alcoholic drinks have been so generally in use by all classes of people, as to exert an important influence for good or evil, on the health of individuals and communities. It was not, however, until within the last six or eight years that the idea was announced, and rapidly circulated through the various periodicals of the country, that alcoholic beverages, and especially genuine Bourbon Whiskey and pure Lager Beer, were capable of, both preventing the development of pulmonary tuberculosis, and of retarding its progress after it had been developed. This announcement not being in consonance with many facts that had previously come under my observation, led me to commence immediately a record of all well marked cases of Tuberculosis that came under my care, and from the subjects of which I could obtain a perfectly reliable account of their previous habits in relation to the use of alcoholic beverages, whether fermented or distilled.

The result of my observations for the first year were reported to the Illinois State Medical Society, at its annual meeting in June, 1856. Since that time the record has been extended until it embraces 210 cases, including the records of both hospital and private practice. Of these cases 140 were males, and 70 females. Eighty-five were natives of Ireland; 60 of the United States; 25 of Norway and Sweeden; 20 of Germany; 15 of England, Scotland and Wales. To prevent erroneous conclusions in regard to these statistics of nativity, we should state that in Chicago, where these observations were made, about one half of the entire population are of foreign birth. And of this half, far the greater part are from Ireland and the German States, though both Swedes and Norwegians are numerous. These statistics being gathered from my own personal observations in practice, it is proper to state that through my connection with the Hospital of the Sisters of Mercy, I come in practical contact with a much larger population of the natives of Ireland than of any other class of foreigners. This will account in *part* for the very large relative proportion of cases from that class of people. The leading object in recording all these cases, was to ascertain just how far the subjects of them had been under the influence of alcoholic drinks, for a period of not less than one year previous to any active or noticable symptoms of the tuberculous disease.

To show the results in reference to this point, I have been obliged to divide the whole number into three classes. The first, were such as had used some form of alcoholic beverage almost daily from one to twelve years previous to the active signs of tuberculosis; the second, such as used these drinks occasionally; and the third, such as had wholly abstained from their use.

Of the 210 cases, 68 belonged to the first class; 91 to the second; and 51 to the third. Although so large a proportion as 68 out of the 210 cases, were habitual drinkers of alcoholic liquors, only 15 of that number were such as are usually called *drunkards.* Five of these were admitted into the Hospital while uffected with delirium tremens, and also in the

advanced stage of tubercular phthisis. Among the 53 cases occurring in those habitually using alcoholic beverages, yet not to the extent of producing drunkenness, there were many presenting circumstances as favorable for determining the question whether these agents are capable of preventing the development of pulmonary Tuberculosis, as though they had been selected by a judicious practitioner purposely for an experiment lasting through a series of years. For instance, a man aged about 45 years, native of Ireland; had resided in the State of Wisconsin for the last twelve years, keeping a public house or tavern in a healthy rural district. He was an intelligent and candid man, and had come to Chicago to consult me in relation to his health. I found him much emaciated, with hectic fever, purulent expectoration, and the physical signs of cavities in the upper lobes of both lungs, surrounded by tuberculous deposits in different stages of advancement. In answer to my inquiries, he said his cough and first symptoms of disease had commenced gradually, about eighteen months previously—had lived in a country district twelve years, during which time, though keeping a *Tavern*, he had taken a fair degree of out-door exercise—had generally enjoyed good health—and had been in the habit, during the whole time, of taking from one to three or four moderate drinks of alcoholic liquors every day, (chiefly Brandy and Whiskey), but had never drank to the extent of producing ordinary intoxication. He denied all knowledge of any hereditary tendency to consumption in the family to which he belonged. This case terminated fatally in about two months after his consultation with me.

Mr. W——, a native of the interior of New York, moved to Wisconsin some fifteen years since; pursued an active life as an agriculturalist, often engaging in the favorite sport of hunting and fishing. He was a man of talent and education, and acquired much distinction and influence in the community. A short time before his death, which was caused by tubercular phthisis, demonstrated by a *post-mortem* examination, I was requested to visit him, and learned that for ten years, at least, he had made almost daily use of distilled spirits.

Mr. A——, a native of New York, aged 24 years; married and moved to Chicago, only two years since; has enjoyed good health until eleven months since, when he began to cough, and all the symptoms and signs of tubercular phthisis have been successively developed, until at present he is in the last stage of the disease. From himself and wife I learned that for the last four years he had made daily use of alcoholic beverages; at first moderately, but for the last twelve months to such an extent as to occasionally produce intoxication.

Mrs. G——, a native of Ireland, aged twenty-three years, came to this country two years since, was married and gave birth to a child, which was four months old when she came under my observation.

She was then in the advanced stage of tubercular phthisis, and died one month afterwards. I learned from her, that until the last eighteen months she considered herself in good health, and did not know that there was any hereditary tendency to phthisis in the family to which she belonged. That for three years previous to leaving for America, she had lived as a servant girl with an English family, and had been furnished as regularly with her *mug* of *Beer* as with her meals. Since her arrival in America she had continued to use the Beer, and occasionally a glass of distilled spirits.

Mr. W——, a young man, had been employed as clerk in a saloon, came to me on account of a cough which had been increasing during the previous three months. On examination, found he had lost flesh, had frequent night sweats, some pus in the expectoration, with all the physical signs of tubercular deposits in the middle and upper lobes of one lung in the second stage of its advancement. He said he had seldom tasted of distilled spirits, but had drank from one to four glasses of ale, daily during the last four years.

Mr. G——, a native of Ireland, aged twenty-one years, came under my observation in the early part of last winter. He had just returned from New-Orleans, and was in the last stage of phthisis. He went to New-Orleans three years previous in good health, had resided there during the three years working as a ship-corker. Told me that his daily practice had

been, during the whole time there, to drink a glass of some kind of liquor, generally whiskey, at each meal time, and often a fourth glass at lunch.

I thus briefly state a few of the cases, as samples of nearly all of the 68, included in the first class. They were all cases showing that the tubercular disease was developed and regularly progressed through all its stages, in *one third* of the whole number of cases in subjects who were at the time, and had been for from one to twelve years previously, regularly and habitually using either fermented or distilled drinks. In but little less than one half of the whole number of cases, the disease was developed while the subjects of it were only occasionally using these drinks. While in less than *one quarter* of the whole number, the disease was developed in subjects who had for *years* totally abstained from all such drinks. Hence, so far as these personal observations bear upon the subject, they point directly to the conclusion, that the use of alcoholic beverages, however uniform their administration, and however long continued, does not prevent the development of tubercular phthisis. If we turn from the narrow circle of personal observation to more general inquiries we shall be forced to the same conclusion.

Thus by the sickness and mortality reports of the English and American armies, it is made apparent that soldiers who use regular rations of alcoholic drinks, furnish full as high a ratio of deaths from tubercular disease, as any equal number of men who do not use such drinks. Again, the statistics compiled by Dr. Bell of New-York, in his prize Essay on this subject, led him to the conclusion, not only, that the use of alcoholic drinks did not prevent the development of tubercular disease, but that it actually favored it. The second part of the paper briefly presents those experimental inquiries into the positive action of alcohol on the properties and functions of the human system, which were commenced by me in 1850, comparing them with similar inquiries instituted by others both in this country and Europe; and by which it is clearly demonstrated that the presence of alcohol in the system diminishes the great functions of respiration, capillary circula-

tion, calorification, and metamorphosis of tissues; and as a necessary consequence, leads to diminished excretion and the accumulation of effete matter both in the blood and the tissues. Finally, both the general and special causes that are supposed to favor the development of phthisis, such as a damp atmosphere, insufficient muscular exercise, confinement within doors without sufficient ventilation, &c., are brought under review and their modus operandi examined. All these causes are shown to act in one and the same direction, viz: to retard the metamorphosis of tissue and the excretory functions of the lungs, skin, kidneys, &c.

It is thus made to appear, that the causes which are generally acknowledged to favor the development of tubercular consumption, actually produce a pathological condition of the structures and functions of the body, closely analogous to that induced by alcoholic drinks.

This analogy is further shown by the fact, that a large proportion of cases of phthisis are accompanied by fatty degenerations of the liver, kidneys, &c., strikingly similar to the fatty degenerations of the same organs, induced by the protracted use of alcoholic drinks.

From the whole field of inquiry passed over, the following conclusions are deduced, to which the critical attention of the section on Practical Medicine is respectfully invited:

1st. That the development of tubercular diseases, is facilitated by all those agents and influences, whether climatic or hygienic, which directly or indirectly, impair or retard the metamorphosis of the organized structures and the efficiency of the excretory functions.

2d. That both observations and carefully devised experiments show that the presence of alcohol in the human sytem, notwithstanding its temporary exhileration of the nervous system, positively retards both metamorphosis and elimination.

3d. That neither the action of alcohol on the functions of the human body, nor the actual results of experience, furnish any evidence that alcoholic beverages are capable of either preventing or retarding the development of tubercular phthisis.

MERCY HOSPITAL.

Service of E. ANDREWS, M. D., Prof. of Surgery.

A Clinical Lecture upon Facial Neuralgia

GENTLEMEN:—The spouting blood and the gaping wounds of common surgery, do not in the least disturb me; yet I set a patient before you this morning, at whose horrible suffering, I confess I am appalled. This man presents to your view no perceptible organic disease. The heart and lungs are sound, the brain is normal in its condition, no canker gnaws at his vitals and no poisonous disease contaminates his blood; yet this man, for very torture, has not lain down in bed for five years. His hair is gray with suffering rather than with age, and the firmness of his step, the steadiness of his voice, the brightness of his eye, and the vigor of his resolution, are all broken and gone, from the extremity of his distress.

Such a malady, gentlemen, is Facial Nuralgia in its more aggravated form.

This disease manifests itself, of course, in the branches of the fifth pair of nerves, from which the face derives its sensibility. Allow me to refresh your mind a little upon the anatomical relations of this nerve. The fifth pair while yet within the skull, and just at the body of the sphenoid bone forms the similunar ganglion. From this ganglion proceed three large branches. The superior of ophthalmic branch supplies the eye, then runs along the roof of the orbit, passes through the supra-orbital foramen and supplies the forehead and adjacent parts. The middle or superior maxilary nerve runs straight forward through the foramen rotundum, across the spheno-maxilary fossa, into the orbit, whence it emerges by the infra-orbital foramen and supplies the cheek, upper lip, anterior part of the gum and the incisor teeth. The last or inferior maxillary branch of the fifth pair, passes out of the skull at the foramen ovale, and decends to the lower jaw where the chief branch enters the dental canal, supplies the lower teeth, and then emerging at the anterior mental foramen supplies the lower lip and the chin.

I show you here, a splendid French preparation in which all the branches and ganglion of the fifth pair are finely displayed with the various canals and foramina through which they pass.

To a careless practitioner, grown rusty in anatomy and obtuse in his pathology, facial neuralgia presents merely an obstinate darting pain in some part of the face, without any apparent inflammation, without much tenderness upon pressure and to his stupid apprehension without cause; but to the truly scientific surgeon, there is no more splendid opportunity for a clear diagnosis than one of these very cases.

To you, gentlemen, I trust that facial neuralgia will present no puzzles. When you have seen and examined your patient, the whole disease will be as clear to you as sunlight. You will know at once what nerve is affected, and will, without a moments hesitation, be able to put your finger upon the exact spot in its course where the cause of trouble exists; further more, you will be able to cure cases which other and less educated men have fumbled over in vain for years.

The key which unlocks all the mysteries of these cases is the following proposition:

Facial Neuralgia, generally results from the compression of some of the branches of the fifth nerve, at the points of passage through the canals and foramina of the facial bones.

If you question your patient, you will generally find that the pain centres chiefly in the parts supplied by a particular branch of the fifth nerve. If you trace back this nerve to the first foramen through which it passes, you will discover that all the branches on the distal side of the foramen are neuralgic, while all the branches given off before reaching the opening, and which do not pass through it, are unaffected. Thus for instance, this patient has a terrible shooting pain in the roots of the right canine and incisor teeth, in the outer side of the gum corresponding, in the upper lip overlying the affected teeth, and in the right cheek and the right lower eyelid. But he has no pain in the roof of the mouth, in the molar teeth, nor in the upper eyelid. Now then what nerves supply the front teeth, the outer side of the gum, the upper lip, the cheek, and the lower eyelid? Obviously the infra-

orbital nerve. Those twigs, and those only, are painful which have come through the infra-orbital foramen. This opening therefore must be the seat of the disease. To settle the question, I will now make pressure upon the foramen itself. (Here Prof. A. pressed upon the spot with the end of a pencil, and the patient cried out in a paroxysm of pain.) You see gentlemen, I have found the spot. Pressure at this foramen renews the atrocious pains, which seem to the patient to shoot through the whole distribution of the infra-orbital branches.

You remember the patient who was here some months since with an awful neuralgia in the lower lip and chin. His pain had endured seven years, and his life was utterly worthless to him. In that case, the pain was confined to those branches of the inferior maxillary nerve which passed through the mental foramen, and the excision of a portion of the trunk of the nerve on the proximal side of the foramen, effected a complete cure.

The pathology of these cases may be briefly elucidated as follows:

1st. The fifth pair of nerves above every other pair in the body sends its branches through a multitude of bony foramina.

2d. Any irritation of the bone or periosteum may cause constriction of the foramina or thickening of their fibrous lining, in which case the nerve is pressed upon and rendered neuralgic. Other tissues can accommodate themselves to a continuous pressure, so as not to be permanently troublesome, but it is a peculiarity of nerve trunks, that they will not thus submit, but keep up from year to year the most atrocious torments.

3d. From this it follows that constriction in the supra-orbital foramen will give rise to neuralgia of the forehead; in the infra-orbital foramen it will cause pain of the incisor teeth, upper lip and cheek; in the posterior palatine canal it will cause pain in the roof of the mouth where the palatine nerve is distributed; in the dental canal of the lower jaw it will effect the lower lip, the chin, and all the teeth anterior to the point of constriction.

The treatment suitable for neuralgia of the fifth pair, is in the first place to remove the constitutional diathesis, upon which the local constriction depends, as for instance, the rheumatic, syphilitic, or malarious influences. If this does not suffice, but the pain continues intolerable and incurable, then you must resort to surgical interference. The surgical operations adapted to these cases are of two kinds. The first is the subcutaneous injection of narcotics over the seat of constriction, and the second is the extirpation of a portion of the trunk of the nerve.

The first operation is one of recent invention, and was introduced into this country from France. The object is to introduce the sulphate of morphine or atropine directly in contact with the effected spot in the trunk of of the nerve, and thus effectually narcotize it. I confess, gentlemen, I am unable to account for the success which attends this operation. Thoretically, I should expect that the relief thus obtained would be very transient, lasting only until the narcotic injection was absorbed and disposed of; but the facts in my experience, and in the experience of others, show that the cure is often permanent after a few repetitions of the injection.

The means required for this operation are a proper syringe and a solution of narcotic. The syringe which I here show holds fifteen drops. The pipe is a fine canula of the size of a large needle, and sharp at the extremity for introduction into the tissue. The solution must be prepared of such strength that the syringe will hold the required dose of the narcotic, which must be the same as when given in full dose by the stomach.

The next step is to find the proper place of introduction. To do this you will bear in mind, that it is not to be thrown in at the place where the patient refers the pain, but over the foramen which is the seat of stricture. You will trace up the nerve therefore to its foramen, and there you will find a spot which being sharply pressed upon by any small hard object causes an aggravation of the neuralgic pain. This is the place for operation. In the present instance it is the infra-orbital

foramen. I now place the point of the syringe over the foramen, push it through the skin, and inject the solution in direct contact with the nerve.

The effect of the injection is often surprising. I can refer to patients in whom a single injection has effected a cure that has now lasted for months, and will probably be permanent.

Sometimes, however, this method fails. The foramina which transmit the nerves are not all accessible to the syringe, and at other times it fails of its full success. In these cases you must resort to the extirpation of a portion of the nerve itself. In selecting the place, and mode of operation, you will be guided by the following rules:

1st. The portion of the nerve excised must be taken from the proximal side of the constricting foramen, and not merely from the proximal side of the seat of pain, otherwise the operation is a perfect failure, because the point where the nerve is pinched is still in communication with the brain.

2d. The portion of the nerve excised, must if possible exceed a half an inch in length. If it does not, there is danger that the nerve may be reproduced across the space, and the pain at a future time be renewed.

If the mental foramen of the inferior maxilla be the offending spot, you may operate at the angle of the jaw. Dissecting up the soft tissues, take a large trephine and place the centre pin upwards and forwards from the angle, at such a distance that the edge of the crown shall be within $\frac{1}{4}$ of an inch of the anterior edge of the ramus where it joins the body of the bone. Then cut through the external table and pry out the button with an elevator. The nerve will be found running across the bottom of the cavity and may be dessected out.

In the present instance the fault is at the infra-orbital foramen, In this case a flap must be raised from the cheek as high as the edge of the orbit. A trephine must then be applied to the front of the *autrum highmoranium* in such a manner that the edge of the crown shall cut close to the fora-

men. The button of bone being removed, the course of the nerve may be traced along the roof of the antrum by a slight bony ridge. This ridge is to be broken down with small forceps, or other instruments, and the nerve dissected out as far back as where it lies within the orbit, or, if deemed best even back to the spheno-maxillary fossa. The flap is to be laid down and secured with sutures.

If the supra-orbital nerve is in fault, no operation upon the bone is necessary. The nerve may be traced through the notch and cut out as far back in the orbit as you can reach without endangering the eye.

With these principles in your minds, gentlemen, you will find obstinate facial neuralgias not to be such incomprehensible riddles to you as they have been to your predecessors. You will understand them readily, and you will treat them efficiently, and the bewildered fumbling of former practice will so far as you are concerned be forever at an end.

CASE OF PROLAPSE OF FUNIS AND CRANIOTOMY.

By F. N. SMITH, M. D., of La Harpe, Illinois

I was called to see Mrs. W——, twenty-two years of age, in her second confinement, about noon of Friday, the 9th of November last. She was having pains at regular intervals, and tolerably severe. On examination, I found the head presenting; but through the membranes, yet unbroken, I could feel what I feared was the funis, ready to descend as soon as they should rupture. The first stage was about completed. A few pains more sufficed to burst the membranes, and what I feared, was now a dread reality. The cord came down nearly to the external parts. I immediately set about trying to place it above the head, in such a manner that it should be retained there. The method proposed by Dr. Meigs—a loop made of a short bit of tape placed around the cord, and a silver male catheter with which to place it up—

was ineffectual. I could not approximate it by means of my hand. An old midwife who was present, learning my perplexity, insisted that as her hand was smaller than mine, she could succeed perhaps. I permitted her to try. She succeeded, however, no better than I did. The child's head now completely filled the upper strait; still there was quite a strong pulsation in the cord. From indications, I began to fear, in addition to prolapsed funis, that there would be difficulty in accomplishing delivery, from the size of the head being so much greater than the capacity of the pelvis. I therefore sent to Blondinsville, a distance of three and a half miles, for Dr. Huston to assist me in the case, and to La Harpe, five miles for obstetric instruments. Dr. H. arrived about nine o'clock in the evening. For several hours—at least four—previous to this, labor had been making no progress, though the pains had been very energetic all the time. The doctor made an examination, and we decided that further effort at reduction of the cord would be useless. He thought we had better leave the labor to nature a while longer. This was agreed to; we waited till midnight, making occasional examinations, with reference to ascertaining what progress labor was making, if any. Nothing had been gained, and the agonizing pains were begining to exhaust the strength of our patient. Pulsation in the cord had ceased. Believing that further delay was not only useless, but jeopardizing the life of the patient, we now made preparations for the operation of craniotomy. The woman was placed partly on her left side across the bed, her hips resting on its edge, and her feet supported by chairs. I used Smellie's Scissors, which being warmed and oiled, I guarded with my index and middle finger, and carried its point to the head of the child, a little to one side of the suture. I directed my assistant to press the instrument, till I found it had entered up to the shoulder-stops, so called. The handles were then drawn asunder sufficiently far, as I thought, to make an incission, that would admit the crotchet. The scissors were withdrawn, and the crotchet introduced, carefully guarding as before. As soon as a pain came on, I made moderate traction, guarding the portion of skull hooked into with the instrument.

Finding that moderate traction did no good, I made it firmer and firmer, till the portion of cranium upon which I was drawing gave way. The position of the crotchet was changed, and I again got it engaged. After firm and steady traction had been made for some time, the cranium once more gave away. I then gave the instruments into the hands of Dr. Huston. He succeeded about as I had done. Although both of us had used a great deal of force, in assisting the efforts of the patient, very little had been gained. We had now the skull so broken up, that we could no longer use the crotchet. After a little rest and consultation, in which Dr. H. gave it as his opinion, that there was some deformity, which prevented the delivery of the child, and which he feared from indications could not be overcome, I proceeded with my hand, used as a blunt hook, to make all the traction in my power, during the presence of pains. The walls of the cranium, of course, had become to a considerable extent, collapsed. By means of my hand, I accomplished more in a short time, than we had effected with all our other efforts. I began to be encouraged. When my hand became tired and cramped, Dr. H. took my place. We attended in our efforts of this kind for perhaps an hour and a half, making slow but steady progress; and now, what was left of the head was in the world. By grasping the head, we could of course, aid the expulsive efforts of the woman to any extent we chose. But the strength of either of us individually could effect nothing at this juncture. We then attempted to bring down an arm; which was accomplished after a trial of some time. The effort requisite to bring down the other arm was not so great. The body was delivered with little delay. The hips became engaged, and were slowly and with a good deal of effort extracted. The placenta was speedily delivered, and there was but little hemorrhage. The child weighed nearly twelve pounds. Could it have been born alive, I judge it would have weighed at least thirteen pounds, perhaps more. It was about four o'clock Saturday morning, when the delivery was completed. The woman was not so much exhausted as I feared she would be. She inhaled considerable chloroform and ether, both before and after the operation;

deeming it best to omit it at the time, that she might be perfectly conscious of any entanglement, or implication of the soft parts, and thus by her warning us, we could avoid anything serious in this way. She thought the chloroform saved her life, by enabling her to endure her pains; and I would say, that I believe the anæsthetic did not abate an atom of the energy of the pains, but rather added to their efficiency. She recovered without an unfavorable symptom. Her size is considerably under medium; and her pelvis not nearly so capacious as we should expect even in a woman of her weight. In her first confinement, the labor I was informed, was very protracted and severe, though her child was quite small, a girl, weighing not to exceed six pounds. It was born alive and healthy.

AN ESSAY ON DIPHTHERIA.

BY HENRY W. DAVIS, M. D., OF PARIS, ILLINOIS.

Diphtheria or Diphtherite has occupied much space in the Medical Journals, and engaged much of the attention of the medical world during the past year. In regard to no affection has such a variety of opinions prevailed; and I am very certain that no one disease has had more advocates for varied and specified treatment. The Public Journals have as usual contributed their share of specifics; while our Medical Literature has been *sandwiched* by contributions from gentlemen who met the disease with the various surroundings, which not only control and modify its action, but exert a powerful influence in directing the treatment. Paris, Edgar Co., Illinois, was the first point west of Xenia, Ohio, at which the disease made its appearance; and as it was marked by a peculiar fatality at its first onset; and as it has been present during each succeeding year since 1853, sometimes in the form of an epidemic, I think an outline of the characters of the disease, embodying its pathology and treatment, may not be without

interest or profit. We have read of epidemics of diphtheria in which the disease was controlled, and patients cured by the employment of a single medicinal agent; of others where cures were effected, and cases recovered under various constitutional remedies, without any, or but little attention having been paid to the effects of the disease as manifested in the throat. Such was not the kind of diphtheria brought under our observation, and such is certainly not the kind of treatment which a sad experience would induce us to recommend.

That diphtheria is a blood lesion, manifesting its presence not only in the throat, but upon all mucous surfaces, I am free to admit, but that it is the blood lesion which destroys the life of the patient, I am not willing to endorse. I conceive that a strong analogy exists in the pseudo membranous formation in dysentery, croup, bronchitis, and the same formation which appears in diphtheria, and in fact between the latter and all the plastic exudations peculiar to inflammatory affections of the mucous membranes.

Why it is that at one time we have an epidemic of dysentery, with a discharge of false membrane from the bowels, and at another a manifestation of apparently the same affection in the throat, I am unable to state. I leave the solution of that puzzle to those who are more familiar with the laws which control epidemics.

It is conceded, however, that when any general morbific cause prevails, nature will, after exerting the "vis medicatrix naturæ," succumb in that portion of the organism previously debilitated, or upon which the poison most readily exerts its influence; primary causes may exist which direct or locate the effects of the poison at different points; and thus it is in my opinion, why we have the same affection involving different parts, at different seasons, and under different miasmatic influences.

Whether the disease under consideration is purely sthenic or asthenic, I am not prepared to say, as it occurs in every variety of systemic condition, and appears to hold the laws of health in defiance. This doubt is predicated on the apparently

opposite state of the system, in different subjects, at the time of an attack. Were I to judge from the effects of the remedies which have been most potent in my hands, and those of my brother practitioners in this locality, I should say that it is purely asthenic in its character. This opinion will, I think, be verified when I come to speak of the treatment, although that will not place it beyond a doubt. I shall speak first, in relation to the manner and place in which the disease manifests itself; or rather of that point of manifestation to which our attention is first directed. This is the upper portion of the throat. I cannot, in giving a history of diphtheria, go beyond that point when the discovery is made of false membrane upon the anterior surface of the tonsils, and free end of the uvula. The appearance of the pseudo membranous formation can be compared to nothing, more like, than the hard boiled white of an egg. The color may vary from a pearly white to a dull yellowish hue; a variation which may be accounted for by the fact, that the deviation from the white is always accompanied with a relative degree of hepatic derangement. There is no marked amount of œdema, or inflammation in the neighboring parts. The exudation looks as if it was stuck in to the mucous membrane, without any connection, pathologically or anatomically, with the parts beneath. Patients generally make little or no complaint of soreness of the throat, which may be attributed to the fact, that what ever of irritation may exist, is protected from additional irritation from the passage of food by the false membrane; so that in many cases, the disease may have approached the "Partæ Vatæ" long before its presence was suspected; and the first note of warning was the hoarse croupy cough, resulting from the presence or approach of the disease in, or towards the larynx. There may be some swelling of the sub-maxillary, sub-lingual and parotid glands, accompanying the disease, or preceding it; but not always is this the case. Whether or not, there are any appearances existing in the throat, prior to the formation of false membrane, which would forewarn us of an attack of diphtheria, I do not know, it comes unannounced; and when discovered, it demands all that skill and attention can bestow.

We have *read* of *one* who treated the disease solely with *Quinine*, losing only one in fifty. We admire the heroism indicated by the *dose* and the *faith*, and wonder at the success; but our patients die often before cinchonism would be produced by the largest dose of the salt. Another commends to us the use of salt and water as a gargle, and professes to have cured all his patients by its use alone. His patients were unlike ours, and the disease which succumbed to such a remedy was certainly different in character from that which we have had to encounter; as, in our hands, the most potent local applications failed in many cases, until a natural mode of using them was adopted. The above mentioned extremely simple methods of treating the disease, *may have been successful*; and were they not, still only negative in their character, little harm would be done, and no injury result from their promulgation and commendation. But they stop not on the side of negation; as, by misleading the inexperienced and unwary practitioner, they become positively hurtful, and unless fully sustained by facts, should receive as they deserve, the strongest reprehension. I would call in question no man's judgement or veracity, but he who writes a history of a disease which, under all circumstances, no matter how favorable, is marked by an unusual fatality, should be at least cautious in recommending the potency of any remedy which has nothing connected with it to sustain the laudations bestowed upon it. The disease is one which every practitioner in the west may be called upon to treat, and his first essay may be against an epidemic characterized by unwonted virulence. Its formidableness is testified to by the number of victims already placed to its credit; and it seems to me that the off hand suggestions, emanating from sources endorsed by unprecedented experience and *luck*, or sustained only by a *brace of fatal cases*, cannot be too much condemned, or received with too much caution. The disease may come upon the isolated practitioner, as it has come upon us, with all its terrible features in attendance, followed by dissolution so rapid, that the physician not only feel powerless to do good, but stands appalled at its ravages; under such circumstances, I do not believe that any one constitutional

remedy is a specific; and feel fully warranted in saying that no reliance can be placed in any one systemic agent. I propose to speak of the affection as it appeared among us; the success which attended our first efforts to control it, and the means by which we eventually were enabled to cure many cases.

I know that in no locality, and under no circumstances, could it have existed in a more formidable form. For a long time diphtheria was a synonym for death; and it was not until 1855 that the rationale of the treatment was forced upon us by the powerlessness of all means hitherto used, and which compelled a resort to something more effectual, either in its nature or application.

The first cases which fell under my observation in 1854, attracted no attention, save that excited by their singularity; nothing of the kind having been seen previously by me. The small amount of constitutional disturbances; the slight local irritation or inflammation; the absence of complaint with regard to the throat, and the little apparent demand for the use of remedies, were all calculated to lead the casual observer astray, and force the young practitioner to acknowledge that both skill and remedies were powerless and inert. Yet, when one after another died, in spite of the best and most active treatment then employed, the disease rapidly became a source of more alarm than curiosity.

Death followed the invasion of diptherite in the throat with a celerity that seemed to defy the most skillful use of remedies; and although our most reliable tonics, alteratives and caustics were brought to bear, no good effect followed; yet I am satisfied that the failure originated not in the means, but in the applicant. Under these circumstances the disease became sufficiently alarming, but less so, from the fact, that it was considered non-contagious. In some few families there were several cases, but as a general rule, but one member was attacked, although surrounded by the same morbific causes. The victim was not the subject of any debilitating influences that were recognizable, but the disease appeared to display, in its selection, the most erratic disposition. So marked was this feature, that no one thought of making contagiousness

one of its characteristics. It was then regarded as a purely local affection, demanding nothing beyond local remedies, so far as the treatment of the special local lesion was concerned.

In many, if not all the cases, malarious complications presented themselves, which succumbed to antiperiodic remedies, but the remedy did nothing towards curing the affection in the throat, thus proving that the disease was not only independent of the poison producing ague, but of the remedy itself, and during the first season of its manifestation, it only ceased to be fatal when it ceased to appear.

In tracing the history of the disease as it appeared among us, we find that during those seasons when we were wholly exempt from it, we were visited by epidemics affecting one or the other portions of the mucous tissues. During the prevalence of dysentery in 1855, there were no cases of diptherite. The earliest cases in 1854 were characterized by much sloughing after the false membrane gave way, as if the whole parts beneath were destroyed prior to the yielding of pseudo membranous formation. This peculiarity attending some cases gave rise to a differential diagnosis; and by many who saw them, it was regarded as ulcerated, or putred sore throat, and treated accordingly.

The throat presented a horrible appearance, and no remedy, as then applied, seemed to exercise any influence whatever Our patients passed rapidly from worse to worst, and the disease stalked beyond our skill, side by side with death. In other cases there was no sloughing at any stage of the disease, and the mucous surface presented little or no change after the disappearance of the diptherite. I believe that those cases where sloughing ensues, belong to the strictly asthenic class, and the others to the sthenic, if the word sthenic is at all compatible with diphtheria. Since 1855 we have had an annual visitation of diptherite in the throat, to a greater or less extent, present only during the absence of other *diptheritic* affections of the mucous membranes; and I must say that our success in its treatment has been much more decided. There is some difference in the nature of the local appliances, but they all tend to the same end, and are used for the accomplish-

ment of the same object; and although the disease is a source of much dread, it is at least now within the range of rational and frequently successful treatment. In many, if not all the modes of managing a case of diphtheria, the medication has been predicated upon the fact conceded that it is a blood lesion, and remedies are directed to the removal of the poison from the system, while little or no attention is paid to the deposit in the throat. Our patients did not die of diphtheria, they were killed by diptherite. We do not think that in any case the blood lesion destroys life, but it is the result of that lesion manifesting itself in the throat, and producing occlusion of the air passages. Our cases therefore would not, and do not recover from any general or systemic treatments, from the fact that they die before the remedy could produce the desired effect. When the result of a disease destroys life in four, eight or twelve hours after discovery, it seems to me that any medicine relied upon to assist nature in eliminating the poison from the system, and thereby effect a cure, is certainly a *rope of sand.*

It was thus, and with such fatal and rapid effects, that the disease manifested itself with us; and it is therefore not strange, if after wading through page after page of essays on diphtheria, we should be astonished at finding no reccommendation of any agent, or agencies, to stay the spread of diptherite in the throat. All that could be gleaned was a recommendation to "buy the lock after the horse was gone." I only allude to the papers I have read, and they are not a few. It may be that the suggestions designed to be embodied in this paper, have already been better completed by him who saw the disease as we saw it, and who discovered earlier, that the way to cure *diphtheria* is by curing *diptherite.*

This apparent paradoxical assertion will, I think, admit of an orthodox explanation. Diptherite is first discovered, in a great majority of cases, upon the tonsils, and free end of the uvula. In rare cases, the buccal and labial membranes were found with patches on them; but its favorite habitat is upon the first named parts. Its tendency is downwards and backwards; and in this it differs from its kindred affection, pseudo

membraneous croup, which starts from the air passages and travels upwards. If the discovery is made prior to the time of its extension to the posterior fauces, or on the epiglottis, it is amenable to treatment with some show of success. If the glottis, larynx, and trachea, are involved, it is at least a matter of exceeding doubt. It has been claimed that a successful termination has followed treatment, after the last mentioned parts were involved, but they are certainly exceptions to the rule; and I must confess that my faith is predicated not upon any success of my own, but upon that of my brother practitioners, whose skill and judgment are unquestioned.—Of the evidence of its presence in the air passages, and the treatment under the circumstances, I will speak fully before I have done. In speaking of the general treatment, we would endorse that which is of a tonic and alterative character, in so far as it has a tendency to support the vital powers, and assist in removing the blood lesion; but with the pathological manifestations which accompany the disease, we would deprecate the idea of relying on it alone, as it is less than a *slender reed.*

I said previously, and I again repeat it, that our patients die from the mechanical obstructions of the air passages, which produces suffocation; and that the cause, proximate or remote, did in no case destroy life. I do not think there is any organ or organs essential to life, which will yield to the influence of the poison of diphtheria, and produce dissolution; but there is one point which must be carefully guarded from its encroachments, and sufficiently protected against its attack, or your patients will, in a majority of cases, die. If this be true, the first duty forced upon the medical attendant, is the prevention of the extension of the disease downwards or backwards in the fauces, or from the anterior portion of the throat to the air passages. The invasion of the air passages is the *fons et origo* of that which induces death. This is the point which must be successfully protected, or your patients are always in danger, and the chances strongly against them. If you can use applications locally, which will prevent the formation of diphtheria between the tonsils and glottis, and thus prolong the life of your patient, I believe the disease will

run its course, and under the efforts of nature, the poison be eliminated from the system, and patients recover. Unless this is done, and that successfully, I believe that were all the systemic remedies in the Materia Medica brought to bear in a single case, not one would have a single chance for certain escape. If the ideas I have endeavored to convey, be correct, and the result of the disease as I have stated, true, certainly the suggestions relative to the treatment are based upon at least common sense; and I am sure it is the course *we* were compelled to pursue, after having been drawn from one resource to another by the fatality of the disease. Our belief in its asthenic character prompted an active tonic treatment, and although the degree of asthenia varied largely in different cases, yet we thought that in each one the prompt use of Quinine, wine and nourishing food, as supporters to, and Iodide and Chlorate of Potassa as alteraters of, the system, were indicated. I have been induced to admit the terms sthenic and asthenic, from respect to older practitioners, who classify it accordingly; yet I think when the wide distinction is drawn between the two phases of the disease, both of which demand, so far as our experience shows, a similar course of medication, it were well to drop them, and use the phrase *malignant* and *non-malignant*, as they certainly are the most expressive. The restoration and sustenance of the vital power was always a leading object, second only to arresting of the formation of false membrane in the posterior fauces and the larynx. For the accomplishment of this important end, I relied wholly upon the officinal Tincture of Iodine, applied with a probang. The object in view was the stimulation of the part, where the membrane was not already formed, and the application of a remedy which not only removed the semi-formed membrane, if it existed, but which, being absorbed, acted upon and altered the secretion from the vessels beneath. By this means we retain the diphtherite in "statu quo," and prevent its encroachments upon those parts of the organism where its approach is most to be dreaded, and where, once fully formed, it must in many cases prove fatal.

This is the BASIS of the only successful treatment of the disease as it prevails with us. It is therefore of the highest import that your remedy should be applied to the throat: and while the formation of false membrane is stayed in the anterior fauces, you may get time to operate on the blood lesion, if such a consummation is really essential to a cure. It has been suggested by one author, "that where early medication is resorted to, the disease may be apparently cured by absorbtion, but eventually re-appears and destroys life by operating upon a system already debilitated by the previous attack." I must confess that the idea of false membrane being absorbed, is with difficulty reconciled with the character of the formation, and I certainly have no testimony to offer to sustain the notion, or even give it the shade of plausibility. The idea of *real absorption* of *disease* is not only unmeaning, but ridiculous and preposterous. That the disease may be eliminated from the system, by the efforts of nature, is, I believe more than probable; and it may be that the effects would a second time appear, if the first manifestation of it was overcome by the recuperative power of the system, provided the poison was still in the blood. But I cannot see the force of the *idea* that a disease is *absorbed*, when it is admitted that its local habitation is the blood system. I believe that nature will do much, if not all, in curing the disease, if we can keep open the portals through which the supplies necessary to vitality are kept up; yet I would be unwilling to risk a case in the hands of nature alone, even after I had met the affection promptly in the throat. In no case that I have met, has the use of Quinine, Potassa, and the usual tonics and alteratives, been contraindicated; always, however, following an expectant course with regard to any symptoms that might arise indicating a special lesion, or constitutional derangement. It may be that in some cases the patient got well in spite of the constitutional tonic and alterative treatment; but I am satisfied that in no case would recovery have followed had not prompt and effective means been directed to the throat. I have thus endeavored to give an idea of the specific treatment which is our *sheet anchor* in controlling the disease. In commending

this course I am sustained by Drs. Ten-Brook and York, who treated the disease in the same locality, and under the same circumstances. Dr. Ten Brook relies upon a strong solution of nitrate of silver, to arrest the spread of diptherite, applying it with a view to the accomplishment of the same end, which induces Dr. York and myself to use the Tr. of Iodine. I would give the iodine preference, because of its known action upon the absorbents, and would use it in diphtheria with the design of producing a like result, as when applying it to the cuticle, to arrest the spread of erysipelatous inflammation; and I must say that the nitrate of silver in my hands, has not proved as efficient, or as worthy of trust, as the high commendations of its endorsers would have led us to expect. The iodine is applied with a sponge saturated with the tincture, and to be of any benefit should be thrust firmly and far down in the posterior fauces. The limited strangulation of the patient will indicate the certainty of the remedy having reached the desired point.

If what I have written with regard to the disease is understood and appreciated, it will be manifest that an early discovery of the affection in the throat is essential to successful treatment. I would credit success in almost all cases to a diagnostic of diptherite in the anterior fauces. Some cases are reported of recovery when the larnyx and trachea were involved. This brings me to the consideration of one phase of the disease in connection with which I have no experience; still, as it may be an accompaniment of every case, I relate it here with the assurance that the authority comes from one, than whom no closer observer, or shrewder diagnostician is to be found in the state. Dr. York says "that when the false membrane has disappeared from view, and is no longer observable in the fauces, having been drawn before your remedies; and when aphonia is present accompanied by a stridulous cough, you may be sure that the larynx and trachea are the seat of fully formed, semi-organized diphtherite. Under these circumstances it is not judicious to use caustics or gargles in any shape, as they only add to the local irritation, and frequently hasten a fatal termination. There is no indication for the use of the

probang when there is nothing visable to operate on. Under such circumstances, reliance is to be placed upon tonics, anodynes, stimulants and the free use of chlorate of potassa, internally and as a gargle, with the occasional administration of an alum emetic, if the strength of the patient will not allow the expulsion of the secretions in the trachea by voluntary effort. It is in these cases that you are compelled to rely upon the efforts of nature in combination with a systemic treatment; and local applications so far from doing good become really hurtful." In connection with the above statement, relative to the disease in the air passages, the evidences thereof, and the proposed treatment, I would suggest that in some cases where all the indications of a tracheal invasion were present, I have not looked upon them as sure prognostics, that such was the fact. In those cases of recovery where there was an entire disappearance of the formation from the eye, followed by aphonia, sibilant rale, I have not attributed the changes to the presence of diptherite, but to congestion, resulting from its near approach, or to the irritation produced by local remedies. It may be that I was wrong, and that the disease was really present; but I thought I marked a distinction between the vocal sounds, in those cases where I was satisfied it was in the air tubes, and which always resulted fatally, and in those where the disturbance resulted from thickening of the vocal chords from œdema. Where diptherite is deposited in the larynx, the vocal sound is always preceded and succeeded by a peculiar whistling sound which cannot be mistaken, and is as easily recognized as the cough in croup, while, where the traction is occasioned by irritation, the voice, though hoarse, is characterized by a uniform rhythm. I have not hesitated in these cases to still continue the use of the iodine, under the belief, always that the aphonia was the result of contiguous irritation, and from the presence of false membrane in the air passages. But admitting that the symptoms were pathognomonic of the presence of diptherite, may there not be an indication still for the use of the alterative application, with the same view that induced us to apply it to the throat above. The characteristics of the disease will aid us in giving plausibility

to such a course. We are satisfied that, from the little complaint relative to the throat made by the patient, the false membrane protects it from irritation by the passage of food. May not the same cause, when present on, and in the glottis and epiglottis, operate so as to destroy the sensibility of the part, and admit a portion of the remedy into the larynx and trachea, and thereby produce the same beneficial effect exerted on the parts above? This has been the reason which justified me in the use of the iodine after the disappearance of the membrane from view, and the inauguration of those symptoms which would indicate its presence below, without, however, as stated previously, being convinced that the disease was really present. I would strongly insist, in cases where aphonia is present, upon the use of the tonic and alterative treatment. The use of the local applications must be left to the judgement of the physician, who will of course be guided by the circumstances attending the case. In all stages of the disease, and under all constitutional modifications thereof, the medical attendants cannot err in exhibiting each and every remedy that tends to sustain life, in the employment of hygienic precautions; but all are, I conceive, secondary to the attention which must be directed to the throat. In classifying the disease I spoke of the malignant and non-malignant forms. It was an experience with the first that prompted the writing of the paper. We met the latter as exceptional cases, and they yielded to local applications alone in the majority of instances. There is more constitutional disturbance attending the malignant form of the disease, and a greater aptitude towards swelling of cervical glands; but in many cases, there is no greater amount of such indications than attends the non-malignant. It would be hard indeed, to say to which form of the disease belongs the greater amount of systemic derangement in the early stages. So insidious is its approach, and so rapid the passage to the condition of complete adynamia or prostration, that but little time is afforded to note the symptoms which attend a case in its descending stages.

In a resume of the ideas embodied in this paper, as bearing upon the treatment, I would say that, close attention to the

throat of all children who are within range of the disease—as *all* are liable to an attack; the prompt application of iodine or nitrate of silver, between the part where the exudation is already formed, and the epiglottis; the use of the application not oftener than once in twenty-four hours, are of the highest import. If aphonia with other indications exist, denoting the presence of the exudation in the air passages, the use of local remedies must be employed or discontinued, as the judgement of the medical attendant shall decide; but experience commends a generous diet of essence of beef, eggs, milk, with the constant rational exhibition of that tonic which shall be best received by the stomach.

In submitting this paper, I have avoided, as far as possible, any indulgence in theoretical speculations. I have written at length, but have endeavored to impress forcibly the few important ideas which were wanting to fill the gap found in all the papers I have read. I know, if the germ can be culled, that the suggestions will be of no little importance to those who are likely to encounter the disease under the same influences, where the treatment recommended was, and is, successful. It is our best, and only reliance, and without it we would feel indeed powerless.

The topography of our Diphtheria may not be without interest. Paris is situated in the Eastern part of Illinois, within ten miles of the boundary line. It is on the edge of the grand prairie, and immediately adjoining the belt of timber which extends to the Wabash River. The country is pretty equally divided between prairie and timber. The first is more undulating than usual, from the fact that several small streams which empty into the Wabash, take their rise on it; while the latter is considerably broken because of the streams running through it. About one-third of the country is under cultivation, while the rest is being rapidly enclosed. Its latitude is between 39° and 40° N., and Longitude 88° and 89° W. The disease was for a long time confined to the town, and since its appearance beyond its limits, the prairie seems to afford the elements for the development to a greater de

gree than the timber. Like all diseases incident to this locality, it is subject to malarious complications, and it is rarely that we meet a case, but that we anticipate a duplication of it in the neighborhood.

SELECTIONS.

Ergot; its Nrtural History and Uses as a Therapeutic Agent. By E. N. CHAPMAN, M. D., of New York. Professor of Materia Medica and Therapeutics in the Long Island College Hospital.—Ergot (*Secale Cornutum*) is defined to be the disease seed of the secale cereale or common rye. Though more frequently found on this plant, yet others of the same family, the grass tribe—gramineæ—are often thus affected. In the wheat, (triticum vulgare,) for example, the spur is common, and it has been shown by the observations and experiments of Mialhe and Pareira to have the same chemical constituents and to produce a like action on the human organism. This parasitie growth possesses undoubtedly a fixed, established character on whatever plants it may be developed, not only when appearing in the grasses, where it has been observed in thirty-one species, but, also, when attacking the sedge family—the cyperaceæ—to which it is less natural. We know this must be so, from whatever source the ergot draws its nourishment, since, from recent observations, it has been established that this and all other fungi have laws of development as unvarying as those that preside over the growth of a tree or animal. The evolution of its germs, like every other form of life, is dependent on a suitable nidus, which can afford the materials for its increase. This is presented by the ova of the grain with its store of albuminoid products. These, elaborated by the plant for the perfection of the grain, are attacked by this parasite, and so transformed by a special, vital powder, that every vestige of original conformation disappears, and a new vegetative product takes its place. This product is the subject of our present observations.

It is called ergot, a name in the French for the spur of the cock; secale cornatum, horned rye, in the Latin; and Mutterkorn, or wombgrain, in the German languages; the two former names originating from its form; the last from the popular belief as to its virtues. Diverse opinions have been entertained as to its nature and mode of production.

Some regard it as a diseased condition of the seeds of the grain produced by the attacks of insects, or seeds perverted in their growth by climatic influences, as, for instance, excessive moisture conjoined with high heat.

A second view is that the ergot is a fungus, growing in the glumes of grasses in place of the ova of the grain, which it entirely supplants. De Candolle, as early as 1855, and Guibourt, in 1849, both distinguished observers, adopt this explanation.

A third view combines the two preceding, and supposes that the spurred rye is the combined product of the morbid grain and the fungus, that its power as a medicine arises from this union, but which of the two was the most important was not decided. Quekett, Leveille, Phillipar, and others advocate this hypothesis, in which they are followed by Pereira, Wood, and most other writers. Mr. Quekett, by extended observations, showed that a fungus, the ergotaetia abortans, or oidium abortifaciens, first makes its appearance on the young grain in the form of a mildew, which, under the microscope, is found to consist of an infinite multitude of spores, which rapidly shoot into cobweb-like filaments, interlacing in all directions, and cementing anthers and stigmas together. This fungus was thought to be mingled with the remains of the decayed seed and the product to form the substance called ergot. Now, from the most recent investigations in vegetable physiology, we must arrive at the conclusion that the fungus, and the fungus alone, is the only indispensible and special constituent of ergot. Remove this, and we have no proof that any other state of disease in the grass tribe will cause a morbid product that possesses the toxic and medicinal action of this drug. We know that the bloom of spores on the ergot, appearing like a fine dust, when sprinkled on the flowering grasses or at their roots, will produce the parasite, and that seeds immersed in water containing them become ergotted. We know that the ova perish, literally starved, and that all of their store of albumenoid products, which naturally would be elaborated into starch granules, is appropriated in the nourishment of a parasite, which, by a vital power of its own, transforms starch into oil, and from a nutritious substance prepares a poison that mysteriously causes contraction in the uterus, and, long used, mortification of the extremeties. We know that no trace of starch can be detected by iodine in this new substance, as there would be, were there any of the grain remaining unchanged.

This point is rendered still more certain by the discoveries recently made and established in regard to the laws of reproduction and growth of the humblest cellular plant, or even a plant of a single cell of microscopic minuteness, that are found to be as fixed as those regulating the life of higher organizations. In fact, all life seems to begin on the same level, only differing in the extent of its development, and the germ cells that eventuate in a human being pass first through all the stages of those of a plant. By the latest observations of Kolliker, in his recent work, it appears that the male germ originates in the testis as a globular cell with a cell-wall, containing from one to twenty nuclei, and that these nuclei are the heads of the spermatozoa, which are folded up in the cell. This cell-wall bursts by the time it reaches the rete testes and the spermatozoa, which are nothing less than elongated cells, are set free. I should state that this high authority has proven that the nucleus in all cells is likewise a cell with cell-walls containing a nucleus, (nucleolus,) and that this nucleolus is supposed by him to be constituted in the same way. The female germ-cell, in as far as can be discovered, is identical with all other cells wherever found, and has a striking analogy to that from the testis. The cell-membrane is named vitellin, the nucleus, germinal spot. In fact, there is no essential difference in any cells, whether of growth, exertion, secretion, or re-production. All have a cell wall, nuclei and nucleoli, and contain in their structure, especially in the cell-wall and nuclei, a protein substance that is universally present.

In reproduction the contents of the male and female cells mingle, and, at the present time, this mode of propagation is being established as the universal law of nature for every living thing. As late as 1855 and 1856, it has been satisfactorily demonstrated by Cohn* and Pringsheim† that the spores of fungi are fertalized in a mode precisely similar to that before known in regard to the ova of animals and flowering plants. The spermatozoids, first made known by these two writers, are proven to be strictly counterparts to the spermatozoa of animals and the pollen of plants. Universally the male cell has one or more filament-like projections in ceaseless motion, and this has been shown to enter the female cell wall either by its absorption or by the law of endosmosis. Then begin those changes that in one case form spores, in another a tree, in another an animal, and in another a man. Each starts from

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* In Comptes Rendus, vol, 43, 1856, and Ann. Sci. Nat. Ser. 4 vol. 5, p. 328.

† Royal Academy of Science, Berlin, Ma., 1855, and May 1856 and Ann. Sci. Nat, Ser. 4 vol. 8, p. 368, and vol. 5, p. 250.

the same point—cells containing or their nuclei and walls being formed of, nitrogenized principles—and by a life-power each individual is envolved according to his kind—first, however, passing through the stages of the inferior orders. To illustrate, the fungi belong to the lowest order of plants, the cryptogamous. Of these, on the verge of vitality, are those of a single cell, either globular or elongated; an example of which is afforded by the green scum on standing pools. A modification of this form of development is seen where the cells elongate to end in jointed filament-like prolongations, as in ordinary moulds or mildew. There is the bread mould and the cheese mould living on dead organic matter, and moulds nourished by the juices of living plants, as that causing the rot in potatoes, or that which has, for several years, destroyed the grape crop of Europe. The ergotætia abortans or oidium abortifaciens is a fungus of the same simple structure.

Now, it has been proven that all vegetation—the highest and the lowest—is dependent on a vital power seated in the cells. This life-force arises from the protoplasm or azotized principle they contain, and by its presence each cell, individually and independently, effects assimilation and nutrition, and the gross result is but the conjoined product of many cells. By the vitalism of these cells, under the influence of light, inorganic is converted into organic. Carbon, hydrogen, oxygen, and nitrogen are thrown into endless combinations, which chemistry cannot even imitate. The air and soil, gases and minerals are transformed into starch, sugar, acids, oils, vegetable albumen, fibrin, casein, cellulose, lignin, and the thousand other products of the vegetable kingdom. Thus we see that the plant, without a nervous system, affects a higher vital action than the animal, since the latter must have for its nutrition ready prepared and organizable materials, and cannot, like a plant, feed on the elements. The humble spore has a power of elaboration even greater than the human stomach. It changes starch into oil, and the nutritious grain-germ into a powerful poison, and, like every other living being, has a parentage that extends back innumerable generations.

I hope, therefore, that I have sufficiently vindicated the claims of this humble plant to a place in the ranks of the great and ceaseless procession of life that ever is passing over the stage of time.

Constituents.—The ergot is covered with a fine dust, which is the sporidia of the fungus. When examined under the microscope, it is found internally to be formed of cells con-

taining oil. After this oil is removed by ether, a substance may be obtained by boiling alcohol, which, by Wiggers, received the name of ergotin, under the supposition that it was the active principle. Bonjean removes the oil in the way mentioned, and from the residue makes a watery extract, which he also calls ergotin. F. L. Winkler obtained a volatile alkaloid, which he called secalin. Probably the active principle has not been isolated; yet, from our present light, I am disposed to conclude the watery preparations may contain it. At least, it is tolerably certain the alcohol is a poorer solvent than water, and that an infusion of fresh ergot rarely disappoints us. There are two principles in this drug; one the narcotic or toxical, which resides in the oil,* as we shall see, and the other the uterine motor-stimulant, which remains in the residue after it has been exhausted by ether.

As early as 1831-2, Dr. Charles Hooker, of New Haven, experimenting with the oil, gave it to a medical Student— 3 ss. at 2 o'clock; 3 i. at 3 o'clock, and 3 i. at 4 o,clock. Intense narcotic symptoms were produced that did not entirely disappear for several days. The pulse fell from 85 to 65, and then to 36, and the respiration from 19 to 8 per minute. On using the same oil, in labor, no influence was observable on the uterine contractions, but on the child that of a powerful narcotic.

He used it in six cases of labor, employing from 20 to 75 drops, and though the pains were not increased, yet "the children for a considerable time after birth had a livid appearance, and respired with much difficulty and irregularty, with the ordinary symptoms of ergotism." In the experiments of Boujean and Wright with the oil on animals, a similar train of narcotic symptoms followed, ending frequently in tonic or clonic convulsions and death. In the many experiments that have been made by others on animals, it has been shown that where abortion does not occur, yet as a general rule, the conception perishes, and after a time is expelled.

Hooker then used the residue that remained after the extraction of the oil, and found its alcoholic power unimpaired. Bonjean's experiments accord with those of Hooker.

We conclude, therefore, that the uterine motor-stimulant power exists in the watery preparations, and the poisonous principle in the oil, but what are the ultimate elements has not been satisfactorily determined.

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* It is stated that the oil extracted by ether, on standing, seperates into an upper and lower strata, and that these differ in their properties, the heavy kind causing uterine contraction. The want of proof of any such distinction has led us to pass over this point in silence.

History.—It has been long recognized that a smut or rust in grain has been the cause of epidemics, which in different seasons have committed great ravages in Europe. Formerly more than at present, from the surroundings of the people, filthy modes of living, bad food, the want of vegetables, and defective ventilation in their mud hovels, typhus plagues and spotted fevers were common; but there cannot be a doubt that these were rendered more prevalent and malignant by a diet of ergoted grain. This cause is rendered more palpable by the appearance of gangrene and mortification in many epidemics. The only wonder is, that these poor people, confined almost exclusively to such bread, could, any of them, escape with their lives. It must be, as suggested by Bonjean, that the heat employed in cooking, dissipates more or less the active principles of the ergot.

The oxytoxic powers of this drug have, from time immemorial, been known amongst the common people of Europe. This is shown by its vulgar name Mutterkorn or womb-grain amongst the Germans. The midwives on the Continent employed it so generally in difficult labor that its use was interdicted in France in 1774. Three years after, Dr. Desgranges, of Lyons, introduced the drug into general use amongst the profession, by published reports of its usefulness and efficacy, yet it was forgotton, until its knowledge was revived thirty years subsequently by Dr. Stearns, of Waterford, of this State. Drs. Akerly, Prescott, Dewees, Chapman, Atlee and others, confirmed the report of its power to excite the action of the uterus, and by their countenance to its use in tedious and difficult labors, rendered its employment in the lying-in room fearfully common. With pride they looked upon it as an American discovery, and as they were enlisted in establishing its claims, and committed to the foregone conclusion that it was a safe and efficacious remedy for expelling the child, they were, of course, blind to the causes of the increased infantile morality.

In France, Chaussier and Madame La Chapelle denied that ergot exercised any power over the uterus. In this they were followed by most of the obstetricians of Europe. Even as late as 1825 it had been scarcely tried, and the unbelief in its power was nearly universal. Even at the present day there is the same doubt, and the properties of our drug are thought to be of a very ambiguous, uncertain character; that, perhaps it may increase the pains when present, or on the eve of arising, but that it cannot originate uterine contractions nor cause abortions.

This is folly. Ergot either has or has not the power over the uterus—it will or will not cause contraction of that viscus when extended.

This we shall discuss by investigating its physiological action.

Animals generally manifest a strong, instinctive repugnance to the ergot, and where considerable quantities are administered, the toxic symptoms are pretty uniform. These are similar to the peculiar condition called ergotism in the human subject. Loss of nutrition, impaired nervous power, imperfect circulation, especially in the extreme capillaries, muscular weakness, sometimes gangrene, convulsions, and death. The pregnant female usually aborted, and where this did not occur immediately, the conception ordinarily perished, and was subsequently expelled.

That the action of this drug is the same on animals as on man, is shown by the experiments of Mr. Tonatt, who says, "I have for the last six or seven years been in the habit of administering the ergot of rye to quadrupeds in cases of difficult or protracted parturition. . . . . The uterus has in every case responded: it has been roused to a greater or less degree of renewed action."

On man, ergot, in full doses, has a special narcotic action, shown by the reduction of the pulse from 10–20 pulsations per minute—giddiness, delirium, dilated pupils, trembling, weakness, unsteady gait, a peculiar intoxication, which the peasants, living on ergoted grain, seem to enjoy, as they would the excitement from alcohol or opium. By living on contaminated food for a length of time, the mind becomes dull and imbecile. There is formication, numbness, cramps, cold and livid extremities. Sometimes convulsions, and speedily mortification, which commences in the extremities and passes upward. It appears as though the narcotic paralyzed the nervous system, rendering the capillary circulation feeble at first, and then finally checking it altogether. Hence, the extreme vessels collapse and dry gangrene is the result. On this property is based the use of this drug in any of the different forms of hemorrhage. Continued doses are required for some time, and a near approach at least to this peculiar ergotic condition. But as we have a safe and far more reliable remedy in the persulphate of iron, or gallic acid, we scarcely should be justified in using so hazardous an article as this would be in persistent doses.

The second property of ergot, and the one for which it is mostly used in medicine, is the power which it has of contraction of the muscular fibres of the uterus. This effect follows, generally, within the hour, from small doses of from 20 to 40 grains, quantities that would occasion no symptoms of ergotism, or any of depression of the heart and nervous system.

Mode of Operating.—The ergot, like all systemic remedies, is absorbed, and thus, through the circulation, impresses the motor tract of the spinal marrow in that limited portion, wherever the uterine nerves take their origin. The muscular organs, contiguous and supplied by the same nerves, as the bladder, for instance, are, as it has been shown, subject to the same stimulus. Herein is comprised all of the valuable virtues of this drug. It is simply an excitant of the motor nerves of a limited portion of the body.

Strychnia is analogous in its mode of operating, affecting, however, the entire motor tract of the spinal marrow, but having no influences over the nerves of sensation or the brain. Both of these drugs act centrically, and thus arouse those reflex movements, of which the spine is the special seat.

The peculiar phenomena excited by ergot have been mostly studied in connection with its medicinal employment. In from 15 to 30 minutes after exhibiting a full dose to a woman in labor, the pains become greatly intensified and without intermissions, although there are remissions for a few moments, and then exacerbations. The womb is constantly hard like a stone, and at no time relaxes. The child is crushed firmly down, does not recede as in ordinary labor, and all the soft parts of the mother are subjected to an unremitting pressure, which in the exacerbations tells with fearful energy on both mother and child. There is no peace until either the child is born or the excitability of the uterus is exhausted. After labor, the uterus condenses into a hard globe, and does not have alternate periods of contraction and relaxation. That good ergot will produce this result with great uniformity I am thoroughly convinced, from a considerable experience. It is alleged by those who grant the power of the drug to increase the natural pains or excite them, when on the eve of arising at the full period, that at no time antecedent has it any such power, and that it cannot originate labor per se. This is an important question practically, and in a medico-legal point of view. During gestation, the uterine muscular fibres are increased many hundred times, and the nervous and vascular supplies are equally augmented. The fully-developed organ

would feel any special stimulus more sensibly than at any previous stage, when the instruments of its appreciation are less. Obviously the nearer the uterus is to its normal size, the less likely shall we be able to arouse it to contraction, and under the same circumstances, we shall be less likely to succeed in morbid distentions than in pregnancy, since in the latter case, it is in a high state of vital activity, whereas when a polypus occupies its cavity the muscular fibres are merely stretched asunder by an internal force. From my experience, I am certain that ergot has a direct power to excite the contractions of the uterus at all times when distended. In some most desparate case of flooding after delivery, where I had extreme difficulty in staying the flow until the medicine could be procured, I have seen it in fifteen minutes produce a firm condensation of the womb, and I have left my patient with a perfect confidence that the danger from this source could not arise again.

A lady, the mother of several children, and of a delicate, spare habit of body, was taken with the most alarming hemorrhage within an hour after delivery. The labor was rapid, with only two expulsive pains. Everything was drenched with blood. It was found that the womb would not contract on the hand in its cavity, and could only be imperfectly retained in a semi-firm state by ice in the vagina, friction with ice externally, and strong compression. She passed from one fainting fit to another, in spite of brandy, which seemed to produce little or no stimulation, and, beside, it was impossible completely to stay the flow that was adding to the collapse. Two drachms of powdered ergot had no effect. At the end of two hours matters had but little mended for the better; the chief change was occasioned by a slight rallying from the stimulus of the brandy. A fresh specimen of ergot was now procured and administered, and in twenty minutes, after giving an infusion of twenty grains, the womb began to condense its fibres, and in less than an hour, by repeating the doses, the uterine globe was firm and hard, with no alternate contractions or relaxations. In another case, resembling this in every particular, the ergot had the same effect.

In both, the exhaustion was so great as to render the response to stimuli imperfect and scarcely perceptible, although given with a liberal hand; yet the ergot, in spite of the want of a disposition in the uterus to contract, caused it to do so within twenty minutes, and not only this, but rendered its condensation firm and unremitting. Surely there cannot be a

doubt of a remedy that acts on the nervous centres when brandy produces little more effect than so much water.

In several instances where, from the death of the conception or the alarming loss of blood on the part of the mother, it has been necessary to hasten the miscarriage, I have rarely been disappointed in this drug. In one case I succeeded with it, where from a fœtus in a putrid condition, the gravest typhoid symptoms had arisen, as shown by a pulse of 140 beats per minute, a dusky countenance, and a low muttering delirium. The lady was advanced to about the fourth month, and although the conception had probably been dead for three weeks, as at that time she fell insensible in puerperal convulsions, yet there was no indisposition to contraction in the uterus. The first prescription failed, but on the next day, the ergot was produced from a sample which I knew was good from previous trial. Within an hour its peculiar action was manifested, and this was continued by repeated doses until the fœtus was expelled.

I saw a case with my friend Dr. Davol, which was even more remarkable. A lady, four months pregnant, had become reduced to such a condition of vital prostration and inanition by persistent vomiting and purging, that her case had been pronounced by us and another practitioner a hopeless one. There did not seem to be any chance for the induction of premature labor. After continuing in this way for three weeks, first the vomiting and then the purging abated. She seemed to rally considerably; took beef tea, stimulants, &c. Improving slightly, she was taken with uterine pains, which were, however, only momentary twinges in the back for 15 or 20 seconds at a time, recurring about every hour. The typhoid state was extreme as shown by her pulse, the want of response to the stimulus of brandy in ounce doses, the ecthyma covering her body, and a bed sore as large as a quarter of a dollar over the sacrum. The os uteri was dilated, yet there was not vital energy sufficient to arouse the uterus into action. For eight hours she took a preparatien of ergot with no effect. We then procured another known to be good, as we had before used from the same parcel. In fifteen minutes, after taking twenty grains, she had a marked pain, which continuing three or four minutes, forced the uterus low down into the excavation. From the want of excitability in the nervous system the pain went off, but recurred again in the same manner from a fresh dose. The lady was delivered one hour and a half after the induction of the first ergotic pain. In neither

of these two cases, both of which took four drachms of ergot by infusion, were any of the narcotic effects of this drug observable, although the feeble condition of the patient was such as, in the opinion of many, to interdict its use.

I saw recently, with my friend, Dr. Gilfillan, a case of polypus uteri, where, in 48 hours, two drachms of the ergot was given in substance. At the end of this time, it was found that no pains had been excited, but the pulse was reduced from seventy-four to sixty-five beats per minute, and there was experienced a dizziness, heaviness in the head, and an uncertainty in muscular movements, showing conclusively that the nervous centres were affected. As the quality of the sample of medicine we were now using was evidently deteriorated, it was changed for a fluid extract, made from the ergot employed in the last two cases before mentioned. Of this there was administered fifteen minims, (the extract containing one grain to the minim) every five hours, until one ounce and a half was taken. From fifteen to twenty minutes after each dose, the pain would commence, lasting for about two hours, and having that constant tension so characteristic of ergot, when gradually it would subside, as the nervous excitability became exhausted. No effect on the pulse or other symptoms of ergotism were observable, notwithstanding the use of so large a quantity of the drug,—sufficient, had the poisonous principle still remained in it, to have produced the most serious consequences. Before attempting the removal of the polypus, whose pedible was attached to the fundus, it was thought that a dose of the medicine would bring the growth more in reach, and thus facilitate its removal. On examination we found the uterus relaxed, the neck soft and dilated, with no periods of contraction, and, in fact, the patient had been free from pain for several hours. The doctor, who very neatly and skillfully removed the polpyus by torsion, stated that the body and neck of the uterus condensed themselves so firmly, that little space was allowed for manipulation, and his fingers became numb from the pressure. In his opinion there could not be a doubt —in this case at least—of the direct and positive action of the ergot.

Therapeutical Uses.—The employment of ergot in labor has been frightfully common in this country, arising, probably, from the fact that high American authorities recommended it as an expulsive agent, both to arouse the uterus when exhausted, and to increase its energy when its efforts, however vigorous, were insufficient. As in the normal process the child could not be born without pains, it was a natural conclusion

that these, when feeble, flagging, or incompetent to overcome the resistance, must be stimulated until our great object, the birth of the child, was attained. It is a *reasonable* doctrine that ministers to a convenient and seductive practice, gratifies our propensity to do something, contributes to our ease, and will undoubtedly save us several hours patient waiting. Of course, its advocates, fortified by a wonderful light from reason in the closet, never saw any harm resultiog from it. They do not believe it would injure either mother or child, as though their medical creed made any difference with facts.

It was found, by M. Depaul, that, during active natural pains, the fœtal circulation became greatly hurried, and at times could not be heard; but, during the intermissions, it gradually resumed its normal rythm. This is readily explained by the fact, that the child's blood is aerated through the influences of the mother's in the uterine sinuses, and the circulation in these sinuses and the arteries that supply them cannot go on freely when the muscular fibres are condensed. How much greater will be the danger to the child when, by ergot, the natural pains, are greatly intensified and the contraction is rendered permanent and continuous? The truth of this is rendered evident by statistics.

In 1850, the Academy of Medicine, at Paris, directed to investigate the influence of ergot on the life of the child, come to the conclusion that this was endangered both by compression and narcotism; in 1853, the Academy adopted the conclusions of M. Depaul: "that, except in miscarriage, in certain labors attended with hemorrhage, and occasionally at the conclusion of natural labor, paturient women would be the gainers by the complete disuse of ergot."

In one hundred and seventy-five cases reported by Busch, where ergot was given, seventeen children were born dead, and eight asphyxiated; of eighty, by Chatto, ten were dead; of forty-eight, by Hardy, thirty-four were dead; of sixty-four by R. U. West, nine were dead.

Dr. Stearns, who re-introduced this remedy into notice, and used it more cautiously than many do at the present day, lost his practice from a strange mortality amongst the children and a child-bed fever that followed him, like an evil genius, from door to door. There can scarcely be a doubt that one hour's ergot pain would be fatal to one half of the infants. They are literally smothered, since they are effectually shut out from the only source whence their blood could be supplied with oxygen. I should not deem it safe to administer the ergot in

any case, unless I was quite certain that the child would be born in four or five vigorous pains. If, after giving it, the birth should be delayed more than half an hour, it would be more prudent to conclude the labor with forceps.

We should never use ergot as an expulsive agent—never where the pains have been, or are vigorous—never to overcome impediments, as a narrow pelvis or rigid perineum—and never in a primipara under any circumstances. In cases where the pelvis is large, presentation natural, all the parts relaxed, and the previous labors short, we should give it, if from a sudden inertion of the womb the child is left pressing on the floor of the pelvis, partially out of the womb. It might not be safe for the child or the mother to allow it to remain any time in this position, since the pressure might endanger the mother's soft parts, and as, more especially, the child might perish from a partial detachment of the placenta, or obstruction to the circulation in the cord. Either the ergot or the forceps will be required. Should the case appear to require the instruments, the ergot may still be requisite after delivery, to prevent post partum hemorrhage.

Flooding after Delivery.—In patients who almost invariably flood after the birth of each child—in all hemorrhage after delivery where the uterus is flabby and relaxed—the ergot is of inestimable value. It will, with great certainty, insure a firm contraction. In any case where we learn the patient floods after confinement, we should give the ergot befo e we leave the house.

Retained Placenta—Some give this drug to remove the placenta when retained. A moment's reflection will convince us that this is a most uunjustifiable practice. We have seen that the ergot influence causes a tonic, unrelenting spasmodic contraction of the uterus far exceeding the natural pains. We know that where the drug is not given, it is a difficult matter, two or three hours after delivery, to introduce the hand and remove the placenta. It would be scarcely possible to do so, if this natural condensation was rendered sudden and permanent by this potent agent. Ergot could not displace an adherent placenta—might not overcome an hour glass contraction; and, in the event of its failure, the difficulties of the case would be greatly augmented.

After Pains.—The after pains are often rendered more troublesome and persistent by a too lax uterus, allowing the blood to ooze freely into its cavity, when, from a diminished

irritability, contraction is only aroused by the stimulus of a greater distension. In such cases, where we have considerable show with each pain, I have found the ergot a most efficient remedy. Should the show be slight, and the pains arise more from nervous irritability, opium and camphor are indicated. The ergot would aggravate such a condition. With both too great a show and nervous irritability, ergot and opium conjoined would be found to answer the pupose. The union of these two remedies would not be improper, since the opium acts on the brain, and the ergot on a localized portion of the spinal marrow.

In Placenta Prævia.—Ramsbotham recommends this drug, for the purpose of holding in check any excessive discharge, until the os uteri shall be sufficiently dilated to admit the hand for the purpose of turning. If we have rightly comprehended the action of this ergotic power, the hemorrhage could scarcely fail to be augmented, and the version of the child be far more difficult; perpaps impossible, without undue violence. From the knowledge we have of the styptic virtues of the persulphate of iron, even in the wounding of considerable arteries, it would, undoubtedly, if pressed against the exposed placental vessels, effectually stay the flow of blood for the time. The iron could be easily and thoroughly applied through a speculum by means of lint.

Ergot in Collapse.—It is stated by Beatty, Griffin, and Barker that where there are evidences of great depression of the heart and nervous system, as shown by syncope, collapse, and a feeble or scarcely perceptible pulse; the ergot should not be given until this condition has first been removed by the use of the opium. It is asserted that the sedative property of the medicine would tend to prevent reaction, and directly and positively augment the prostration. Now, it is a fortunate circumstance, that as we suppose, the narcotic and ecbolic principles can be separated, and we can produce one effect or the other at our pleasure; since, in debility, we wish to avoid any approach to ergotism, although the emergencies of the case may call imperatively for increased uterine contractions. In no one case have any symptoms of a narcotic action been observed where the infusion, or the fluid extract, have been administered. Hence, we conclude that in these forms we may use this medicine in the most profound collapse, and in any case, as in polypus or hydatids, for many days in succession.

Hemorrhage during Gestation.—The ergot could not be admissible at any period during gestation for restraining uterine

hemorrhage, since in moderate doses it could only act by causing contraction, and the induction of this condition would be almost sure to produce miscarriage.

To Induce Premature Labor.—Good ergot has undoubtedly the power to originate uterine pain, and it has been used for the induction of premature labor in cases where the pelvis is so contracted or deformed as not to admit of the passage of a full-sized child. By the tables of Ramsbotham and Hoffman, it appears that of thirty-eight children, prematurally born under the ergotic influence, twenty-seven perished. This practice should not be imitated where the child is viable, and there is a possibility of saving its life without endangering that of the mother. But, when the death of the conception, or other sufficient reasons, in regard to the safety of the mother, render the removal of the fœtus imperative, then the ergot affords us, probably, the safest means for this purpose, since the pains, from the imperfectly developed muscular structure of the uterus, cannot be excited to a degree that could endanger any of the soft parts of the mother; and more than this, the child's head would be readily moulded into a form suited to the passage.

Polypi, Hydatids, etc.—In all cases where the volume of the uterus is increased by any structure loose in its cavity—as hydatids—the ergot should be used for their expulsion, and in the case of polypi, the same remedy affords us the only means we have of bringing the morbid growth through and beyond the os uteri, so as to render its removal by torsion or ligature possible.

The dangers to the mother at the full period, from the negligent use of ergot, are a rupture of the body or neck of the uterus, rupture of the perineum, and injury to the bladder. The walls of the uterus at this stage are more than an inch in thickness, forming a hallow muscle equal in tension and cohesion to any other in the body. I can scarcely believe that any medicine, which merely calls out its excitability, can induce such violent contractions as to make a breach in its structure. We have no analogies to lead us to such a conclusion. The most powerful tetanic spasms, whether from disease, or poisonous doses of strychnia, never produce any such result; and where persons have suddenly and powerfully exerted themselves, the tendons have been known to give way, sometimes a few of the muscular fibres, but it must be a rare occurrence for a powerful muscle to be completely torn across. More than this, rupture of the uterus is less frequent in

primiparous women, where the resistence would be the greatest. I cannot but think that all cases of this accident in the body or fundus of the womb must arise through a softened condition of its structure from disease, and would occur, whether ergot was given or not; at least, it is well known that most of the cases were in persons with a deformed pelvis, who had, on previous occasions, been delivered with instruments. I have seen four instances of this sad and melancholy conclusions to labor; two in my own practice, and two in that of others. All had been confined from two to four times, and had one or more times been delivered with instruments. All were in the first stage of labor, the os uteri high up, and the pains insignificant and of a cutting character. In none was any medicine given, and in many cases, which happened in my presence, the rent took place during the absence of the pain; in one by sitting up in bed for a drink, and in the other on getting out of bed. In all there was a sharp projection of the promontory of the sacrum, unlike its natural rounded contour, which greatly encroached on the capacity and outline of the superior strait. During the latter months the womb and its contents, no insignificant weight, must have rested on this projecting ledge. The pressure might cause softening, or even death in the tissue, precisely as we observe in bed-sores, or in ulceration of the heel in fractures; more especially would this cause be operative, if the woman by a fall, misstep, or riding on a rough road, should cause the womb to strike forcibly on this projecting point, so as to bruise or cause ecchymosis into its tissue. The subsequent pressure would then be far more likely to cause softening. One of my cases seemed to date from the giving way of a night chair, which brought the woman with force to the floor. A post-mortem could not be obtained, excepting in the case just mentioned, and it was shown on dissection, that the ruptured portion was sphacelated, and near by was another point unbroken, through which the finger readily passed. In this and all the other cases, as was determined on introducing the hand for the purpose of turning, the solution of continuity was on the posterior face of the uterus, at the junction of the neck with the body, in a transverse line, so that the os was partially detached in the form of a ring.

Rupture of the Neck of the Uterus or the Perineum.—The conditions under which the neck of the uterus and the perineum are placed are far different. Their tissues must be distended, and fibres frayed out and elongated before the child can pass, and we know, by experience, that alternate periods of tension

and rest accomplish this object in the most satisfactory manner; but should the child be pushed suddenly and forcibly forward, a rupture would be very apt to occur just before the dilatation was complete. The rent in the neck will generally commence on its free edge and extend longitudinally, or a rim of the os might be torn off. The capacity for resistance of these parts, thus thinned out cannot be compared to a powerful muscular structure more than an inch in thickness, that condenses itself at each pain.

The action of Ergot on other Pelvic Muscles.—If ergot is a motor-stimulant to the uterus, by exciting the spinal marrow at the origin of the nerves of motion in a specified portion, it follows, that other muscular organs contiguous and supplied by the same nerves should be also under the influence of the same remedy. On this ground it may be used in paralysis of the bladder or its neck and spermatorrhœa, where this arises from muscular atony. Dr. Mitchell, one of the council of this Institution, has attained the best results from its employment in this class of cases. Prof. Barker states that he never knew it to fail in retention of urine after labor.

A gentleman, æt. 35 years, had paraplegia on the right side several years since. He has less command of the leg on that side and a partial loss of sensation in the fore-arm and hand. Sometimes, frequent and irresistible calls to pass urine, that cannot be restrained, will torment him for several days; at other times, for many hours, he is in pain from his inability to evacuate his bladder, when suddenly the flow will commence, over which he now has no command. In this case there was evidently a want of muscular power both in the bladder and spincter, alternating with a spasmodic condition. Fifteen drops of the fluid extract was administered four times daily, until one ounce and a half were taken; when the medicine was discontinued, as now his relief from this annoyance was complete. Since his improvement dated from the commencement of this treatment, and nature with her expectant modes had never come to his relief in eight long weeks, the result was ascribed to the peculiar action of ergot. In this case no evidence of a narcotic impression were observable, either by a reduction of the heart's action or unwonted sensations at the nervous centres.

Ergot in Menorrhagia.—The ergot has been much given in menorrhagia, and in all other morbid conditions of the uterus, attended with a bloody discharge, as, for example, polypi,

primiparous women, where the resistence would be the greatest. I cannot but think that all cases of this accident in the body or fundus of the womb must arise through a softened condition of its structure from disease, and would occur, whether ergot was given or not; at least, it is well known that most of the cases were in persons with a deformed pelvis, who had, on previous occasions, been delivered with instruments. I have seen four instances of this sad and melancholy conclusions to labor; two in my own practice, and two in that of others. All had been confined from two to four times, and had one or more times been delivered with instruments. All were in the first stage of labor, the os uteri high up, and the pains insignificant and of a cutting character. In none was any medicine given, and in many cases, which happened in my presence, the rent took place during the absence of the pain; in one by sitting up in bed for a drink, and in the other on getting out of bed. In all there was a sharp projection of the promontory of the sacrum, unlike its natural rounded contour, which greatly encroached on the capacity and outline of the superior strait. During the latter months the womb and its contents, no insignificant weight, must have rested on this projecting ledge. The pressure might cause softening, or even death in the tissue, precisely as we observe in bed-sores, or in ulceration of the heel in fractures; more especially would this cause be operative, if the woman by a fall, misstep, or riding on a rough road, should cause the womb to strike forcibly on this projecting point, so as to bruise or cause ecchymosis into its tissue. The subsequent pressure would then be far more likely to cause softening. One of my cases seemed to date from the giving way of a night chair, which brought the woman with force to the floor. A post-mortem could not be obtained, excepting in the case just mentioned, and it was shown on dissection, that the ruptured portion was sphacelated, and near by was another point unbroken, through which the finger readily passed. In this and all the other cases, as was determined on introducing the hand for the purpose of turning, the solution of continuity was on the posterior face of the uterus, at the junction of the neck with the body, in a transverse line, so that the os was partially detached in the form of a ring.

Rupture of the Neck of the Uterus or the Perineum.—The conditions under which the neck of the uterus and the perineum are placed are far different. Their tissues must be distended, and fibres frayed out and elongated before the child can pass, and we know, by experience, that alternate periods of tension

and rest accomplish this object in the most satisfactory manner; but should the child be pushed suddenly and forcibly forward, a rupture would be very apt to occur just before the dilatation was complete. The rent in the neck will generally commence on its free edge and extend longitudinally, or a rim of the os might be torn off. The capacity for resistance of these parts, thus thinned out cannot be compared to a powerful muscular structure more than an inch in thickness, that condenses itself at each pain.

The action of Ergot on other Pelvic Muscles.—If ergot is a motor-stimulant to the uterus, by exciting the spinal marrow at the origin of the nerves of motion in a specified portion, it follows, that other muscular organs contiguous and supplied by the same nerves should be also under the influence of the same remedy. On this ground it may be used in paralysis of the bladder or its neck and spermatorrhœa, where this arises from muscular atony. Dr. Mitchell, one of the council of this Institution, has attained the best results from its employment in this class of cases. Prof. Barker states that he never knew it to fail in retention of urine after labor.

A gentleman, æt. 35 years, had paraplegia on the right side several years since. He has less command of the leg on that side and a partial loss of sensation in the fore-arm and hand. Sometimes, frequent and irresistible calls to pass urine, that cannot be restrained, will torment him for several days; at other times, for many hours, he is in pain from his inability to evacuate his bladder, when suddenly the flow will commence, over which he now has no command. In this case there was evidently a want of muscular power both in the bladder and spincter, alternating with a spasmodic condition. Fifteen drops of the fluid extract was administered four times daily, until one ounce and a half were taken; when the medicine was discontinued, as now his relief from this annoyance was complete. Since his improvement dated from the commencement of this treatment, and nature with her expectant modes had never come to his relief in eight long weeks, the result was ascribed to the peculiar action of ergot. In this case no evidence of a narcotic impression were observable, either by a reduction of the heart's action or unwonted sensations at the nervous centres.

Ergot in Menorrhagia.—The ergot has been much given in menorrhagia, and in all other morbid conditions of the uterus, attended with a bloody discharge, as, for example, polypi,

fibrous tumors, ulceration of the os uteri, malignant growths, etc. So also in other forms of hemorrhage, hæmoptysis, hæmaturia, et cetera, the same practice is recommended and instituted by several writers. As before remarked, this drug can only act beneficially in arresting any form of internal hemorrhage through its narcotic principle, and to attain this end it must be persevered in until evidences of ergotism are shown in a reduction of the pulse and the supervention of abnormal symptoms in the great ganglionic centres. For this purpose we could not depend upon any preparation deprived of the oil, and in truth the oil would be the one alone fitted to fulfill the indications. Since, however, we are in the possession of more reliable and far less hazardous remedies, we should be scarcely justified in using one that may produce the most lamentable results.

The Ergot for Female Diseases.—The ergot has been employed through an obscure idea of its specific virtues for almost every disease peculiar to females; amenorrhœa, leucorrhœa, uterine and vaginal, and gonorrhœa, both of the male and female; yet, we need hardly to remark, there are no known properties in this drug to render it of the least avail in any disease of this character. Since we build our foundations on facts, and have little time for beliefs, opinions, and the dicta of writers, we shall thus briefly dismiss this head of our subject, with the hope, however, that this word specific will ere long be banished from our nomenclature, and that every man in the ranks of our great and noble profession will ever have a reason for the faith that is in him, established on such a basis; notwithstanding it has been scoffed and sneered at as empirical, we shall hold fast to all established truth which now and ever will be found impressed with the seal of Nature, unchanging and eternal.

In conclusion we will briefly recapitulate the main points, deduced from the data hitherto presented.

1st. The active principles of ergot are the products of a a plant, the odium abortifaciens. These are peculiar to it, and are in no wise more dependent on the grain-germ, than any plant is on the soil that affords it nourishment.

2d. These principles—not as yet isolated—are, probably, two in number; one of which, contained in the oil, produces narcotic symptoms, and eventually gangrene; the other, remaining in the residue after the extraction of the oil, acts by

stimulation on the motor tract of the spinal marrow at that limited portion whence the uterus and contiguous muscles receive their nerves of motion.

3d. The oil is alone efficacious in any form of hemorrhage, excepting in that from enlarged uterus, and we can only look for favorable results when the system has been brought under its influence, as shown by a narcotic impression on the brain and heart.

4th. So hazardous a treatment cannot be countenanced; since we possess other remedies of known virtues, not only more reliable, but unattended with any risk.

5th. The watery preparations, which, lacking the oil, can be given many days in succession, will act on the motor tract of the spinal marrow, but will not induce ergotism or other evidence of a narcotic poison.

6th. Ergot of good quality causes the uterus to contract with great certainty whenever its cavity is distended, either by a fœtus or a morbid growth. These contractions are tonic and continuous, with periods of remissions and exacerbations.

7th. Hence, this remedy may originate uterine pains at any period of gestation, or cause the expulsion of clots, hydatids, or any other unattached substance.

8th. Likewise, after labor, it will check an excessive flow by closing the mouths of the bleeding vessels through a condensation of the muscular fibres of the uterus. In relaxed conditions it will be, on the same principle, beneficial in after-pains attended with a copious show.

9th. Since we know of no other mode by which ergot can immediately arrest hemorrhage from the pregnant uterus, it should be avoided in all cases where a hope still remains of saving the conception, and its agency invoked only when the fœtus is dead or the safety of the mother becomes our first duty.

10th. In premature labor, induced by ergot, or in labor at the full period, where this drug is given, the child's life is jeopardized in all cases, where for a considerable period previous to the dilivery, the uterus is thrown into violent spasmodic action; since thus the supply of oxygen will be most effectually cut off.

11th. Where the child is viable, the ergot should never be used as an expulsive agent to increase pains, already powerful, or overcome resistance from the soft parts of the mother.

12th. It may be required in cases of inertia of the uterus where, with all the parts relaxed, we are quite certain, both from the present appearances and the history of former labors, that the child would be born in four or five vigorous natural pains.

13th. The dangers to the mother from the use of ergot, arise from the uterus thus stimulated, rupturing the unyielding parts in its transit. Thus the neck of the uterus, the bladder or the perineum may receive serious injury.

14th. Rupture of the uterus could hardly occur, excepting in a diseased organ.

15th. A premature fœtus from its small size and the yielding nature of the cranial bones could scarcely, under any uterine effort, cause damage to the soft parts of the mother.

On Pelvic Measurements. By W. H. Byford, M. D., Prof. of Obstetrics in the Med. Dep. of Lind University.—The subject of pelvic measurement is of so much importance, obstetrically, that various modes and instruments have been devised and invented for its correct accomplishment at different times; yet there is no one that gives exact results for all parts of the cavity and straits, and probably all combined, as they are now used, will only enable us to arrive at proximate instead of absolute certainty in this respect. I have examined the writings of all the authors of books and articles in the periodicals within my reach, and the result is as I have stated.

Under these circumstances, I hope it will not be regarded as presumption for me to give a plan which I have taught for the last three years, and demonstrated to the medical classes who have honored me with their attention. These demonstrations have been upon the cadaver entirely, and I have only tried it once upon the parturient patient; but I believe the common sense of the plan will commend itself to the profession sufficiently to insure a trial. The instrument I use is Baudelocque's calipers. The instrument should be constructed with flexible and movable shanks, so that the convexity of their axis can de altered, or that they may be entirely straightened, or one flexed more than the other. The scale for measurement between the shanks cannot be relied upon, in

the altered flexures of them, for anything but a rule by which we may readjust the instrument after withdrawing, so that we may measure the distance between the balls upon the extremities, and thus find how far they were separated when in the pelvis. Bearing this in mind, when we wish to measure the antero-posterior diameter, we place the balled extremity of one of the shanks on the upper part of the inner surface of the symphysis pubis, and the other opposite to it upon the external surface, observe the position of the shanks upon the scale, remove the instrument, replace the shanks upon the scale as they were while applied, and then measure the distance between the points. This is the thickness of the pubis and the soft parts covering it, inside and out. Now place the point of one of the shanks upon the promontory of the sacrum, and the other upon the spinous process of the last lumbar vertebra, observe the marks upon the scale, withdraw the instrument, readjust the shanks upon the scale, and measure the distance between the points, when you will have the thickness of the pelvic wall of the superior strait. Now place the point of one shank on the front of the pubis at its upper edge, and the other on the spinous process of the last lumbar vertebra, and this will give us the thickness of both anterior and posterior walls, and the plan of the superior strait; by substracting the two former from this whole measurement, we get the exact measurement of the strait itself. Now by introducing one shank into the vagina, and placing it upon the middle of the linea ilio-pectinea, and placing the other upon the great trochanter outside opposite, we have the thickness of the side wall of the superior strait. Place one point on each great trochanter, and we have the aggregate measurement from one side to the other. By deducting the thickness of the walls, thus ascertained, from the whole sum, we have the exact length of the bilateral line of the superior strait.

It seems to me that there is nothing more simple and exact than the above mode of arriving at correct measurements of the superior strait. The same *mode* of proceeding will give as satisfactory results if applied to the cavity or inferior strait. I hope that members of the profession, who have charge of institutions where they can test the validity of the above mode of measuring the pelvis, will give it a trial, and publish their experiments and conclusions.—*American Journal of Medical Sciences.*

Influence of Tobacco Smoking on Public Health.—Sir CHARLES HASTINGS read a paper on this subject before the National Association for the Promotion of Social Science. He commenced by observing that it might be considered one of the functions of the Association to point out the evil effect on public health of certain active agents in daily use by the community. The one to which he would especially draw attention was tobacco. Tobacco is at present extensively consumed by all classes; it is a very active narcotic agent; its empyreumatic oil acts most deleteriously on the nervous system; and when it is concentrated, death results from it. The author then quoted the account of the chemical nature of tobacco, as given by Professor Johnstone, of Durham, "that the chemical constituents of tobacco are three in number: a volatile alkali, and an empyreumatic oil. The volatile oil has the odour of tobacco, and possesses a bitter taste. On the mouth and throat it produces a sensation similar to that caused by tobacco smoke. When applied to the nose it occasions sneezing, and when take internally it gives rise to giddiness, nausea, and an inclination to vomit. The volatile alkali has the odour of tobacco, an acrid, burning, long-continuing, tobacco taste, and possesses narcotic and very poisonous qualities. In this latter respect it is scarcely inferior to prussic acid, a single drop being sufficient to kill a dog. Its vapour is so irritating, that it is difficult to breathe in a room in which a single drop has been evaporated. A hundred pounds of the dry tobacco-leaf yield about seven pounds of nicotin. In smoking a hundred grains of tobacco, therefore, say a quarter of an ounce there may be drawn into the mouth two grains or more of one of the most subtle of all known poisons. The empyreumatic oil is acrid and disagreeable to the taste, narcotic and poisonous. One drop applied to the tongue of a cat brought on convulsions, and in two minutes occasioned death. The Hottentots are said to kill snakes by putting a drop of it on their tongues. Under its influence, the reptiles die as instantaneously as if killed by an electric shock. It appears to act nearly in the same way as prussic acid. Experience proves that a large proportion of those who smoke or chew tobacco, do so under the conviction that it is always innocous in its effects, and often beneficial. Now, this is a mistake which the every-day observation of medical practitioners can attest. For among the patients who consult us for various nervous and stomach complaints, it will be found that tobacco smokers form a large proportion. Indeed, we find, unexpectedly sometimes, on inquiry, that the habit of smoking is the source of very distressing aliments, which immediately or

gradually subside on omitting the use of this drug. It is grievous to observe that this habit is prevailing among young people, upon whom its effects are most likely to be prejudicial. Strikingly illustrative of this position is the fact, which has been very recently made public, that in the competitive examinations to which young persons are submitted in the military schools in France, the smokers of tobacco occupy the lowest place."

One of the most severe cases of epilepsy which Sir Charles had ever seen was in a boy of twelve years of age, who had been for two years a tobacco-smoker; he recovered only on being prevented from continuing the habit. It could, no doubt be said, and it was true, that thousands pursue this practice without producing epilepsy; but many of these suffer from nervous and digestive disorders.

It was, then, important that the Association should disseminate sound views on the action of tobacco, and should show that this drug cannot be used indiscriminately. An admonition from such a body would come with more force than from the medical profession, whose admnoitions could only find way among the sick and those needing medical care, while the opinion of the Association would permeate the community at large. Sir Charles Hastings theu quoted from the opinion of Sir B. Brodie on the effects of tobacco on the nervous system.

The various institutions now formed and supported for the purpose of diffusing useful knowledge among the laboring classes, ought to be available to assist in this work, if their managers could be made awake to the importance of the question; but, in many instances, these societies are not aware of the baneful action of tobacco on the frame. If they were, smoking-rooms would not form a part of the establishment, whereby the onward progress of civilization is proposed to be insured. It is a sad reflection that it should be considered necessary to insure the attendance of members at a society whose professed object is to advocate civilization by diffusing art and science, that there should be the means supplied for indulging in the evil habit of smoking, as in the clubs of the aristocracy. This Association may at any rate raise a warning voice against such erroneous proceedings, which must doubtless tend to enervate our population, and eventually to produce a degenerate race.

Sir Charles Hastings ended his paper with the following conclusions:

The tthe effects of tobacco-smoking are chiefly dependent upon an empyreumatic volatile oil, and other active principles, whose direct tendency is to act injuriously on the nervous system and digestive organs. That tobacco is extensively consumed by the community, and its use ought to be discouraged. That this Association emphatically records its conviction that societies formed for the purpose of promoting useful knowledge amongst the working classes, should on no account provide smoking rooms for the members.—*British Med. Jour.* Oct. 6, 1860.

Treatment of Diphtheria, Inaflmmatory Angina and Croup, by the Perchloride of Iron, by M. Aubran.—The author read a paper with the above title at the meeting of the Academy of Sciences, December 7th. The following is his plan of treatment: "I put from twenty to forty drops of perchloride of iron into a glass of cold water, according to the gravity of the disease and the age of the patient. The patient must drink a swallow (about two dessert spoonfuls) every five minutes while he is awake, and every quarter of an hour during sleep. Immediately after each dose, a swallow of cold milk without sugar should be given. This treatment must be continued with regularity for several days, without respect to sleep for the first three days. Experience has taught me that it is only at the end of the third day that false membranes begin to soften and be detached. This solution of perchloride of iron ought always to be administered in a glass or porcelain vessel, so as to avoid the decomposition which takes place when it comes in contact with metal. I forbid all drinks and nourishment susceptible of decomposing the iron. In general, during the first three or four days, I do not give anything but the solution of perchloride of iron and cold milk. Local treatment is secondary, and may even be entirely omitted. The internal treatment is sufficient in the greatest number of cases. Administered from the beginning of the disease, this medication will cure the oftenest without an operation. If the progress of the croup is very rapid, or if the medication has not been given until an advanced period of the disease, tracheotomy may become necessary, but the perchloride of iron should be continued, for it is it alone which will cure. Of thirty-nine cases, during the first three days thirty-five have been cured; two cases only have required tracheotomy, from the beginning of the treatment. It was continued scrupulously, and a cure resulted in the two cases, in spite of the gravity of the disease, as the dipetheritic membrane had invaded the bronchia to a great extent."—*Cin. Lan. & Observer.*

The Smithsonian Institution.—The total amount of the bequest, as received into the treasury, was $515,169; interest on the same to July 1846, devoted to the erection of the building, $242,129. In addition to these $135,000 of unexpended income has been invested in State Bonds, so that the present income of the Institution is $38,325,14. The principal expenditures are, for salaries, about $9,000; for publications of all kinds, $9,000; for meteorological observations, $2,500; for lecturers, $1,000; for the library, $3,500; for museum, $2,000. There are some incidental matters involving expenditure, and about $5,000 is set apart from the income to make a certain financial change for the sake of economy. The collections of various kinds which had accumulated at Washington, have now been concentrated at the Institution, Congress agreeing to make an appropriation of $4,000 annually to keep them up. They are such as the collection of the Exploring Expedition, under Captain Wilkes, in South America and the South Seas; that of Lieutenant Herndon's exploration of the Amazon; Capt. Stanbury's exploration of the Great Salt Lake; Captain Perry's Japan collections, etc., etc. This museum is stated to be now superior to any other in this country as a general collection, though in the specialties of exotic birds, shells, fossils, and minerals, it is said to be surpassed by the Philadelphia Academy of Natural Sciences. We are glad to see that the Secretary who has charge of this department looks forward to the object of "having a public museum, illustrating as fully as possible the natural history of the world, and taking rank with those of London Paris, Berlin, and Vienna."—*Washington Star.*

Position a Remedy for Stertor.—Mr. Bowels, after repeated trial, assures the profession that stertor in apoplexy, etc., is immediately relieved by turning the patient well on his side, so that the paralyzed tongue and velum palati will fall forward, and the mucus drain away. Very soon, also, the phenomenon of partial suffocation accompanying the stertor, will disappear. —*Cin. Lancet & Observer.*

Iodide of Amonium.—This drug is reputed valuable in all cases where potas. iod. is indicated, particularly in constitutional syphilis. Its claimed advantages are: greater acceptability to the stomach, its effect more rapidly produces, and the quantity required less. From two to sixteen grains given per day.—*Cin. Lancet & Observer.*

EDITORIAL.

Report of the Committee on Medical Education, presented to the Academy of Medical Sciences, Jan. 4th, 1861. By N. S. Davis, M. D., *Chairman of the Committee.*

According to the by-laws of the Academy, the Committee on Medical Education are requested to "take cognizance of the systems of Medical Education, private and public, in this city and State, as compared with such as are elsewhere in use," &c., &c.; and are requested to report "at least once a year to the Academy."

In fulfilling the duties thus imposed, the Chairman of your Committee would respectfully submit the following report:

In regard to Medical Colleges, we would report that there are two in the State, both of which are located in this city. Several years since attempts were made to establish Medical Colleges at Jacksonville, at St. Charles, and at Rock Island, but without success.

The Rush Medical College of this city, with an independent charter from the State Legislature, commenced an active existence in 1842, and has continued in successful operation to the present time. Its plan of instruction is identical with that adopted by a majority of the Medical Colleges in this country; consisting of one annual College term of sixteen weeks, during which all the branches of medical science and art are taught by lectures and demonstrations. Its requisitions for graduation are the same as those usually adopted, viz: three years study, two courses of lectures, during at least one of which, the candidate must have attended to Practical Anatomy and Hospital Clinical instruction; the attainment of twenty-one years of age; the possession of a good moral character; and the ability to sustain an examination in the several branches taught.

During the past history of the Rush Medical College we believe, it has adhered practically to these regulations as faithfully as any Medical College in our country. Its several Chairs have been occupied by men of talent, some of whom, like the professors of Surgery and Chemistry, have held their

position from the foundation of the school to the present time, and have attained a high reputation in their respective departments.

The prosperity of the school has been maintained with much uniformity. During the last ten years the number of students in attendance has varied from 100 to 150; the latter number being present, if we remember right, during the session of 1856-7. We are informed that the class in attendance during the present session, numbers about 145.

Besides the several courses of lectures embraced in the College curriculum, the students enjoy the advantages of one or two College Clinics each week, and so many of them as choose to take the tickets, have access to the several Hospitals in the city.

The second Medical College in this city, is the Medical Department of Lind University. It was organized in 1859, and its first annual course of instruction was given in the fall and winter of 1859-60; and its second course is now in progress. The plan of organization adopted by this department of the University, differs from that adopted by the great majority of Medical Colleges in this country, in three important particulars, viz: in the length of the annual session; in the greater number of professorships; and in the division of the students into Junior and Senior classes.

The regular annual lecture term is five months; commencing with the first week in October, and ending the first week in March. There are thirteen professorships, viz: one of Descriptive Anatomy; of Inorganic Chemistry; of Physiology and Histology; of Materia Medica; of General Pathology and Public Hygiene; of Surgical Anatomy and operations of Surgery; of Organic Chemistry and Toxicology; of Obstetrics and Diseases of Women; of Practical Medicine; of Practical Surgery; of Medical Jurisprudence; of Clinical Medicine; and of Clinical Surgery. The first five departments named, together with Practical Anatomy in the Dissecting room, constitute the Junior course; while the remaining departments make up the Senior course. In the Junior department there

are four lectures daily throughout the term. In the Senior department, there are also four lectures in the College, and one Clinic in the Mercy Hospital, daily, throughout the term. In addition to the daily Hospital classes, there is a Surgical Clinic in the College every Wednesday, and a Clinic on Diseases of Women and Children, every Saturday.

The foregoing plan was adopted by this institution, for the purpose of rendering the study of Medicine more systematic or methodical, by compelling each student to concentrate his attention upon the more elementary branches, until he could sustain a fair examination therein, before he could advance to the more practical departments; and at the same time, by increasing the length of the lecture term and doubling the number of professors, to make the entire field of College instruction much more extensive than in the ordinary College courses. Another prominent object was to elevate the departments of Clinical Medicine and Surgery to their proper position by making them a part of the regular daily course of instruction in the Senior department. The requisites for graduation are the same as we have already stated in reference to Rush Medical College. The number of students who attended the first course in the University was thirty-three; and the present class numbers fifty.

Though this department of the Lind University is not yet two years old, it has made rapid progress in the accumulation of the means of illustration and study. Its Museum already contains 2970 specimens, belonging to the departments of Anatomy, Surgery, Obstetrics, and Pathology. The chemical Labratory is well filled; and the Library contains near 700 volumes. We have thus briefly noticed the two Medical Colleges in our city. We believe they are an honor to the city and the State, and are worthy of the fostering care of the profession and of the community generally.

Private Instruction.—Previous to the organization of the Medical Department of the Lind University in 1859, no arrangements had been made in this city for the systematic instruction of Medical Students, during the interval from the

close of one lecture term to the opening of the next. But the feelings of rivalry engendered by the organization of a new school, soon caused an organization to be effected under the auspices of the Rush Medical College, consisting of six or eight of the more enterprising and active practitioners of this city, for the purpose of systematic summer instruction; embracing examinations, lectures, and clinics. Its plans were carried into successful practical operation during the summer of 1860, at least, from the first of March to the first of July.

The faculty of the Medical Department of Lind University also adopted, as a part of their system of medical instruction, arrangements for a systematic course of summer study. This plan was so arranged that the students would have one examination, with familiar explanations, and one clinical lecture each day, throughout the whole interval, from one lecture term to the next. This plan was carried out by the faculty, and attended by a regular class of students during the past summer.

Hospitals.—There are, at present, three hospitals in the city, in each of which clinical instruction is given to some extent; and each of which, consequently, becomes an important aid to the education of the profession.

And although these institutions are small, compared with some of those in the older eastern cities, yet we doubt whether there is a city in the Union, in the Hospitals of which, a greater amount of clinical and practical instruction is given at the bedside of the sick, than those of our own city.

If the foregoing representations are correct, it will be seen that we have in our midst, not only two well organized Medical Colleges, but also all the facilities both for private and clinical instruction, that can be found elsewhere; and consequently, that Chicago is not more a centre of commerce, than a seat of medical instruction. It was feared by many in the profession, that the organization of a second College here, would merely divide the patronage that had hitherto hardly been sufficient to sustain the first, and thereby prove an injury to the profession. Experience has shown those fears to have been groundless. On the contrary, the organization of the new

school, has incited the faculty of the old one to greater exertions, to the organization of private courses of instruction, to more extended hospital and clinical advantages, and consequently they have drawn to their lecture rooms an increased number of students. Hence, instead of one school maintaining instruction sixteen weeks annually, to a class ranging from 110 to 150, as was the case prior to 1859, we have now two schools, with collateral organizations for medical instruction all the year, the one with a class of 145, and the other of 50, making an aggregate of 195 students now receiving instruction in the city. And we predict, that if the faculty of each school, shall continue a liberal and honorable emulation; each striving honestly to make the institution to which they are attached, worthy of the patronage of the profession, five years will not elapse before the aggregate number of students assembling annually for medical instruction in our city, will reach from three to four hundred,

One of the greatest obstacles in the way of elevating the standard of medical education, is, the inordinate hurry of students to enter upon the practical duties of the profession. Many of them can hardly be induced to read a work on Anatomy before they become impatient to take up a work on practice. So they can scarcely get through one College course of lectures, before they must enter upon practice. We hold it to be the duty of every member of the profession, as well as of the Colleges, to discourage this tendency, and to insist on a full period of study, and a full share of that study to be devoted to the fundamental branches of medical science. All of which is respectfully submitted.

Anesthetics.—The following letter from Dr. Prince will be read with interest:

Jacksonville, Jan. 17th, 1861.

Prof. Davis—Dear Sir: In reply to your "request" in the December number of the Examiner, I reply that I commenced the use of Chloroform in Surgical operations and in cases of parturition immediatly upon its introduction by Prof. Simpson. I had been previously using Ether, and I was at once greatly

pleased with the superiority of Chloroform in its pleasantness to patients, and the speediness and completeness of its effects. I never saw any unhappy results from its use, but I soon became alarmed by the multiplied cases of fatal results, reported in newspapers and medical journals.

In 1850 I found Dr. Mussey (in Cincinnati,) using a combination of three-fourths of Ether and one-fourth of Chloroform, *by bulk*, and I have used this combination ever since. I have not used unmixed Chloroform for Surgical and Obstetrical cases for ten years. I have sometimes used Ether alone, but not often.

In two cases, respiration ceased while patients were under the influence of this mixture. In the first of these cases, the patient lying upon his side, horizontally, was undergoing an operation for excision of a cancer of the lower lip, and the formation of a new lip. The respiration suddenly ceased. No time was lost in turning the patient over, *to* and *fro*, according to Marshal Hall's "Ready Method," The patient breathed again, and the operation was proceeded with. I, at the time, attributed this to blood in the glottis.

In the next case, the patient was lying upon a bed about to undergo amputation of the leg. The assistant, who was administering the anesthetic, said that the patient did not breathe. The patient was immediately turned upon his side, upon his face, and back upon his side, and then upon his back, repeating this process to and fro about sixteen times a minute, and pausing a little each time the patient came upon his back, side and face. Not many of these semi-revolutions were required, to restore respiration, which commenced with a gap. A methodist minister who was standing by as a spectator, remarked that the patient had been nearly enough "across the river, to hear the horn blow on the other side."

As soon as respiration was completely restored, the operation was proceeded with, more of the anesthetic being administered as it was needed.

A Fatal Case.—A dog was being rendered insensible for a Surgical experiment, when his breathing was noticed to cease.

He was immediately turned over to and fro, and the breathing commencing with a gap, went on as before. The experiment was then performed, and the dog made a good recovery. At another time the same dog was undergoing a different experiment, when his breathing was noticed to cease. He would have been instantly turned over as on the former occasion, but that it was a little inconvenient to stop the process for that purpose. The blood did not flow as freely as it was expected to do, and the process, (testing Simpsons *accu-pressure* for controlling hemorrhage,) was suspended to turn the animal over, but to no purpose; too much time had been lost. If the "ready method" had been resorted to immediately on the cessation of respiration, I have no doubt it would have been as effectual as in the other instance with the same dog. A little impatience at being interrupted cost the animal his life.

Without stopping to reason much upon the matter, these propositions must be plain enough:

To secure a *speedy* entrance of air into the lungs is the one thing needful.

To turn the patient over, to and fro is the *speediest* method of securing the one thing needful.

Therefore, this expedient should in all cases be first resorted to.

It should be resorted to in all cases *immediately* upon noticing the cessation of inspiration, at whatever inconvenience.

If the patient is in the sitting posture, he should be *immediately* thrown upon the floor and rolled over.

It follows that a man of caution, who entertains these views, will never give a patient an anesthetic with such surroundings as to render it impracticable to turn him over, to and fro, upon the occurrence of any, (even suspicious) flagging of respiration.

What has been said, leads to the inference that all other restoratives are practically excluded, except those which may be resorted to at the same time.

The patient may be slapped upon the back, and cold water may be dashed upon the face, at the same time that the semi

or quarter rotations are being practiced, and they are therefore appropriate enough, as *auxiliaries*, to the "ready method."

What about applying a bottle of ammonia to the nose—of giving the patient a drink of brandy when he is not breathing? How much vapor of ammonia will go into the nostrils in the absence of inspiration, and where will the brandy go more readily than into the larynx under these circumstances?

The *fatal* objection to these or any other remedies which take the place of artificial respiration, is, that these uselessly squander the only few moments, during which respiration can be restored.

Upon the theory that the heart first ceases its function, and the lungs afterwards theirs, the question is, whether the *first few moments* shall be spent in rolling the patient over, thus applying that heart-stimulant, which arises from the continuance of the flow of blood through the lungs, thus draining the heart of blood on one side, and replenishing it with blood upon the other; or whether they shall be spent in getting ready a galvanic apparatus with which to *shock* the patient,—any man sees the decision of the question in its very statement.

The *first few moments* must be employed in keeping up the respiration, and there is but one means of doing this on the instant. The seconds of time diminish in value in a rapid ratio, and the very first second may be employed in turning the patient over—thus securing a change in the amount of air in the lungs, by the necessary motion of the ribs and diaphram during the change of position, and this change in amount of air is respiration.

Upon the theory that the danger arises from paralysis of the muscles of the epiglottis, or upon a loss of sensibility which fails to secure their action, through reflex nervous action, or from obstruction of the fissure of the glottis, by blood, or the viscid secretions, the process of turning over meets the indications coming from all these theories,—even that of the falling of the paralyzed epiglottis upon the glottis; for while the patient is upon his side the ribs will fall together, and the air

will rush out, and when he comes upon his face, the epiglottis will fall forward or downward, by its own weight, at the same time that the ribs will expand, and air will rush in.

Sticking a hook into the base of the tongue, and pulling it forward, meets the indication upon the theory of paralysed epiglottis, but unfortunately it must be useless, if respiration has ceased from any other cause.

The process of turning the patient over, meets all the causes existing singly or combined.

I pray the Lord that it may in every case be resorted to *at once.*

Yours for Science,

DAVID PRINCE.

Arseniate of Gold in the Treatment of Cancer.—M. Massard, strongly recommends the Arseniate of Gold as an internal remedy for the cure of Cancer. We quote the following from the American Medical Monthly:

"Arseniate of Gold is prepared by shaking together a solution of pure Chlorate of Gold, and a solution of Arseniate of Potash, allowing the mixture to stand 24 hours, filtering and drying the precipitate. On account of its insolubility in water, arseniate of gold may be given in the solid form. The maximum dose is two centigrammes a day, in two divided doses. The dose ordinarily commenced with, is three or four milligrammes a day, increasing one milligramme every third day, until the maximum dose is reached, which is to be continued several months. Toxical effects have never yet been observed."

Aromatic Sulphuric Acid in Treatment of Tapeworm.—Dr. B. Darrach, of Quincy, Ill., publishes in the American Journal of Medical Sciences, some cases showing the efficacy of Aromatic Sulphuric Acid as a remedy for Tapeworm. To be effectual, one drachm of the acid should be given well diluted in water, in the course of three or four hours. On the third or fourth day it may be repeated.

Chloroform in Congestive Chills.—The inhalation of chloroform in the cold stage of congestive chills, is confidently recommended by Dr. H. L. Byrd, of Savannah, Ga., in the Oglethorpe Medical and Surgical Journal.

Digitalis in Delirium Tremens.—Mr. Jones, of Jersey, England, strongly recommends large doses of Tinct. of Digitalis as a remedy for Delirium Tremens. He gave it in ℥ ss doses.

AMERICAN MEDICAL ASSOCIATION.

The fourteenth annual meeting of the American Medical Association will be held, in Metropolitan Hall, city of Chicago; commencing on the *first* Tuesday in June next.

Each regularly organized Medical Society is entitled to send one delegate for every ten of its members; and each Medical College is entitled to two delegates. It is desired that the names of delegates should be forwarded to the undersigned, as soon after their appointment, as practicable.

Chicago, Feb. 1st, 1861. H. A. JOHNSON,
Assist. Secretary.

Editors of Medical Journals please copy.

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